SONY

DIGITAL AUDIO MIXER

DMX-E2000

MAINTENANCE MANUAL Part 2

1st Edition

Serial No. 10001 and Higher (For UC)

Serial No. 20001 and Higher (For J)

Serial No. 30001 and Higher (For EK)

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

Check the metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 3.5 mA. Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 5.25 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 20V AC range are suitable. (See Fig. A)

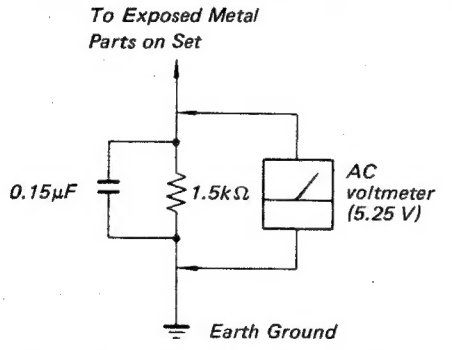

Fig. A. Using an AC voltmeter to check AC leakage.

このマニュアルについて

本書の目的
本書は、下記対称機種のメンテナンスナンスマニュアルパート2です。
対称機種: DMX-E2000

本書は、サービスエンジニアの方々にご使用いただくことを想定し、これらの機種の部品レベルまでのサービスを前提とした情報 (回路図、マウント図、詳細パーツリスト等) を記載しています。

構成
本書の構成を把握していただくために、全章の概略を以下に説明します。

メンテナンスナンスマニュアルパート2

第1章　サービスインフォメーション
補修用部品注意事項、基板内スイッチの設定、自己診断について説明しています。

第2章　電気調整
MIX-17基板を交換した際に必要な調整について記載しています。

SECTION 3　BOARD LAYOUTS
マウント図、部品の基板アドレスを記載しています。

SECTION 4　SCHEMATIC DIAGRAMS
回路図を記載しています。

SECTION 5　SEMICONDUCTOR PIN ASSIGNMENTS
使用半導体の標準図を記載しています。

SECTION 6　SPARE PARTS
分解図･メカ部品表、電気部品表を記載しています。

メンテナンスマニュアルパート1 (DMX-E2000に付属しています)
第1章　設置
第2章　サービスインフォメーション
SECTION 3.　BLOCK DIAGRAMS, DESCRIOPTION AND FRAME WIRING
SECTION 4.　SPARE PARTS

MANUAL STRUCTURE

Purpose of This Manual
This manual is Maintenance Manual Part 2 for the following models.
Models: DMX-E2000

This manual describes the information items (adjustments, board layouts, schamatic diagrams, detailed parts list, etc.) that premise the service based on parts.
If this manual is required, please contact to Sony's service organization.

Contents
The following are a summary of all the sections for understanding the contents of this manual.

Maintenance Manual Part 2

SECTION 1. SERVICE OVERVIEW
Describes the precautions for repair parts, switch setting on the boards and self-diagnostics.

SECTION 2. ELECTRICAL ALIGNMENTS
Describes adjustments required when MIX-17 board is replaced.

SECTION 3. BOARD LAYOUTS
Printed circuit pattern of circuit boards and their printed symbols are shown in the almost same order of schematic diagrams.

SECTION 4. SCHEMATIC DIAGRAMS
Contains schematic diagrams of printed circuit board.

SECTION 5. SEMICONCUCTOR PIN ASSIGNMENTS
Contains pin assignment diagrams of semiconductors used.

SECTION 6. SPARE PARTS
Contains exploded views, machanical parts list, and electrical parts list.

Maintenance Manual Part 1 (Supplied with DMX-E2000)
SECTION 1. INSTALLATION
SECTION 2. SERVICE OVERVIEW
SECTION 3. BLOCK DIAGRAMS, DESCRIPTION AND FREME WIRING
SECTION 4. SPARE PARTS

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第1章
サービスインフォメーション

1-1. 補修用部品注意事項

1-1-1. 補修用部品注意事項

(1) 安全重要部品

回路図、分解図、電気部品表中で⚠印付きの部品は、安全性を維持するために重要な部品である。従ってこれらの部品を交換する時には、必ず指定の部品と交換すること。

(2) 部品の共通化

ソニーから供給される部品はセットに実装されているものと異なることがある。
これは部品の共通化、改良等によるものである。
分解図や電気部品表には現時点での共通化された部品が記載されている。

(3) 部品の変更

部品の変更に関する情報は第7章「CHANGED PARTS」を参照すること。

(4) 部品の在庫

部品表のSP (Supply code) 欄にoで示される部品は交換頻度が低い部品で、在庫していないことがあり、納期が長くなることがある。

(5) コンデンサ、抵抗の単位

回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されていることがある。

コンデンサ ：μF
抵抗 ：Ω

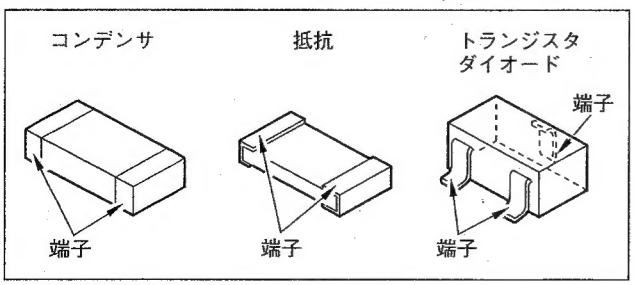
1-1-2. チップ部品の交換方法

用意する工具

はんだコテ ：20 W程度。できれば、コテの温度を270±10 ℃にコントロールできる温度コントローラを使用すること。
編組線 ：SOLDER TAULまたは同等品
ソニー部品番号: 7-641-300-81
はんだ ：直径0.6 mmが望ましい。
ピンセット

はんだ付条件

コテ温度 ：270±10 ℃
はんだ付時間 ：一端子について2秒以内にする。



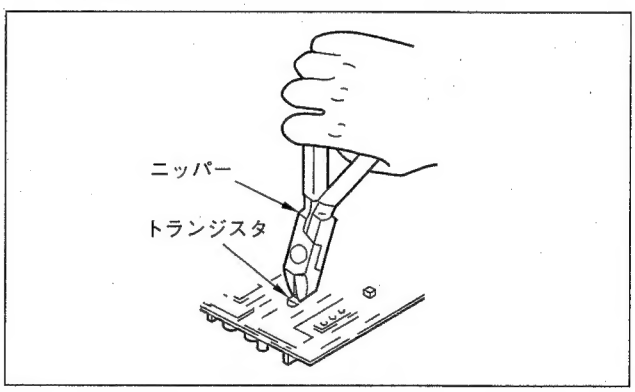
• 抵抗、コンデンサの交換

(1) はんだコテの先をチップ部品の上にのせてチップ部品を加熱し、はんだが溶けた状態で横にずらす。
(2) 取り外した部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
(3) パターンにうすく予備はんだをする。
(4) 新しいチップ部品をパターンにのせ、両端をはんだ付けする。

注意: 取り外したチップ部品は再び使わないこと。

• トランジスタ、ダイオードの交換

(1) ニッパにて部品の端子を切断する。
(2) 切断した端子をはんだコテで取り除く。
(3) 取り除いた部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
(4) パターンにうすく予備はんだをする。
(5) 新しいチップ部品をパターンにのせ、端子をはんだ付けする。

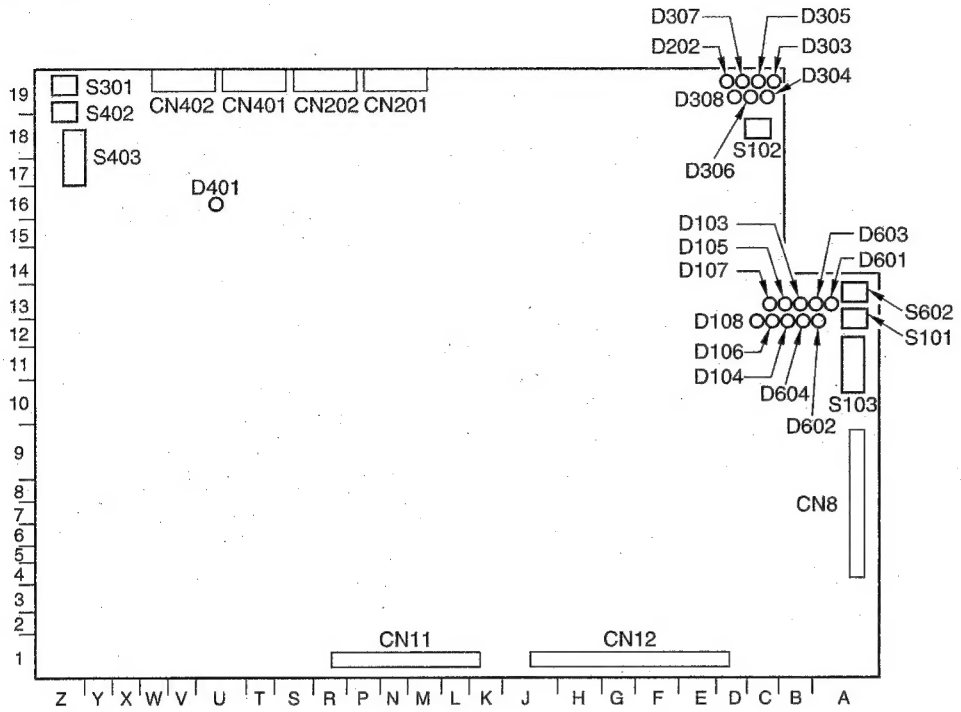


• ICの交換

(1) 編組線を使って端子のはんだを取り除く。
(2) はんだコテで加熱しながら、ピンセットなどを使って端子を1本ずつパターンから外し、ICを取り除く。
(3) 取り除いた部分のパターンはがれ、隣接はんだ付部のダメージ、ブリッジなどがないことを確認する。
(4) パターンにうすく予備はんだをする。
(5) 新しいチップ部品をパターンにのせ、端子をはんだ付けする。

1-2. 基板内スイッチの設定

MIX-17基板



MIX-17基板（A面）

スイッチ

S101 ： RESETスイッチ
　　HOST CPUのRESETスイッチ
S102 ： 使用せず
S103 ： DIPスイッチ
　　工場出荷時の設定
　　(この設定以外では使用しないこと)
　　S103-1, 2 ：ON
　　S103-3 to 8 : OFF
S301 ： RESETスイッチ
　　DSP CPUのRESETスイッチ
S402 ： 使用せず
S403 ： DIPスイッチ
　　工場出荷時の設定
　　(この設定以外では使用しないこと)
　　S403-1, 2 ：ON
　　S403-3 to 8 : OFF
S602 ： RESETスイッチ
　　DSP CPUのRESETスイッチ

LED

D103 ： 通常動作時点滅
D104 ： 通常動作時点滅
D105 ： 通常動作時点滅
D106 ： 通常動作時点滅
D107 ： 未使用
D108 ： 未使用
D202 ： HOST CPU HALT
D303 ： 未使用
D304 ： 未使用
D305 ： 通常動作時点滅
D306 ： 通常動作時点滅
D307 ： 未使用
D308 ： 未使用
D401 ： DSP CPU HALT
D601 ： 9PIN CPU TX ACTIVE
D602 ： 9PIN CPU RX ACTIVE
D603, D604 ：
　　両方がONの時通信可能状態

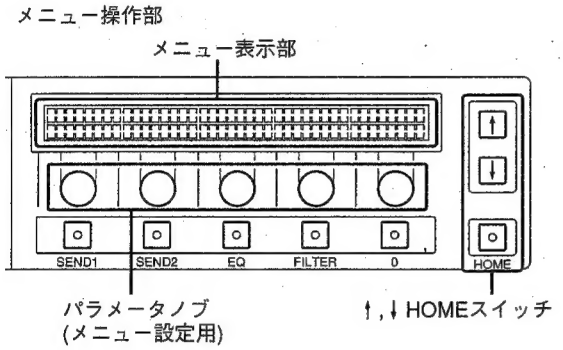
1-3. 自己診断

ここでは、DMX-E2000に搭載されている下記自己診断プログラムについて説明する。

1. "LAMP CHECK" プログラム
2. "DSP CHECK" プログラム

プログラムの起動方法

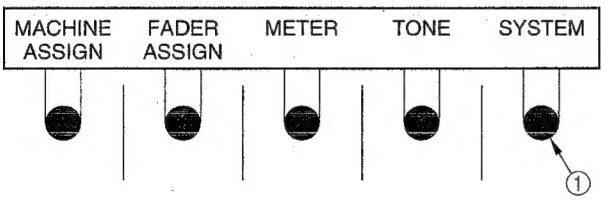
自己診断プログラムの起動は、"SET UP MENU" のメニューを使用 (設定) して行う。
メニューの設定はコントロールパネルのメニュー操作部より行う。



手順

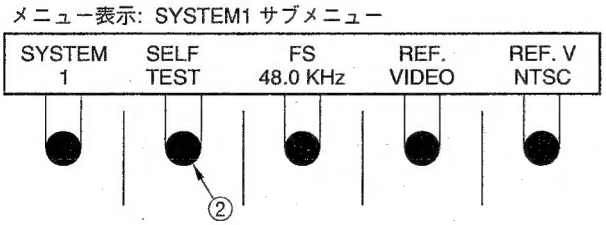
(1) "セットアップメニュー1" の "システム設定変更サブメニュー" (下図参照) を選択する。
(メニューの設定方法については、OPERATION MANUALの "メニュー" 及び "システムの設定" を参照)

メニュー表示: システム設定変更サブメニュー



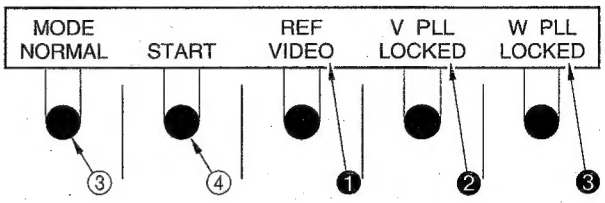
(2) SYSTEM表示 (システム設定変更サブメニュー) に対応したパラメータノブ①を押し、"SYSTEM1サブメニュー" を選択する。

メニュー表示: SYSTEM1 サブメニュー



(3) SELF TEST表示 (SYSTEM1サブメニュー) に対応したパラメータノブ②を押して、"SELF TESTサブメニュー" を選択する。

メニュー表示: SELF TEST サブメニュー



(4) MODE表示 (SELF TESTサブメニュー) に対応したパラメータノブ③を押して、起動する自己診断プログラム (LAMP CHECKまたは、DSP CHECK) を選択する。
モードは、MODE表示のパラメータノブ③を押す毎に、NORMAL → LAMP CHK (LAMP CHECK) → DSP CHK (DSP CHECK) の順で切り替わる。
なお、このメニュー表示画面で、
リファレンスの有無 ❶ (NO REF/REF)、
ビデオPLLの状態 ❷ (LOCKED/UNLOCK) 及び、
ワードPLLの状態 ❸ (LOCKED/UNLOCK)
がチェックできる。

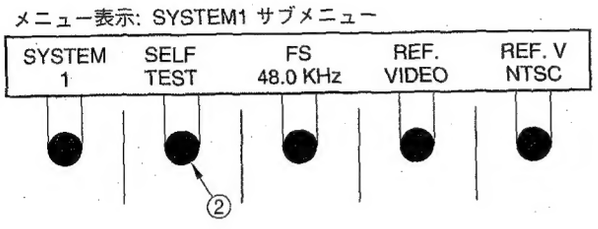
通常プログラムへの復帰

自己診断の終了後、通常プログラムへ復帰する場合は、以下の手順で行う。

手順

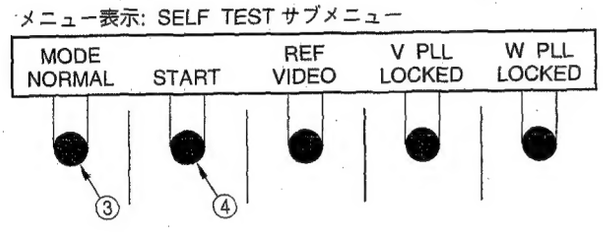
(1) HOME スイッチを押して、"SYSTEM1サブメニュー"を選択する。

メニュー表示: SYSTEM1 サブメニュー



(2) SELF TEST表示に対応するパラメータノブ②を押して、SELF TESTサブメニューを選択する。

メニュー表示: SELF TEST サブメニュー



(3) MODE表示に対応するパラメータノブ③を押して、NORMALモードに設定する。

(4) START表示に対応するパラメターノブ④を押して、通常プログラム (セットアップメニュー1) へ復帰する。

1-3-1. LAMP CHECKモード

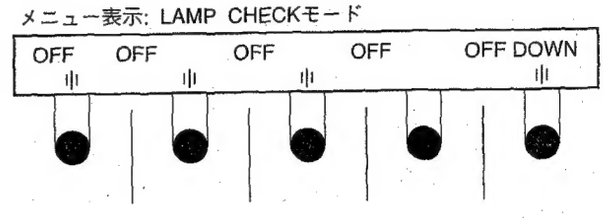
このモードは、DMX-E2000のスイッチ、LED等のヒューマンインターフェースのチェックを行う。

LAMP CHECKモードの設定

(1) "SELF TESTサブメニュー" ("プログラムの起動方法" 参照) のMODE表示に対応するパラメータノブ③を押して、"LAMP CHECK" モードを設定する。

(2) START表示 (SELF TESTサブメニュー) に対応するパラメータノブ④を押す。

メニュー表示: LAMP CHECKモード



(3) 以下の "チェック方法" に従って、各チェックを行う。

チェック方法

① EDITOR ENABLE, PARALLEL ENABLE, HOME, ∮, FILTER, EQ, SEND1, SEND2, LINE, MONITOR, TONE, マトリクスACCESS, SOURCEマトリクス, LINEマトリクス, MONITORマトリクス, DIM, MUTE, MONITOR SELECT, TB OUT, トークバック SEND1/SEND2, DISPLAY, LOCAL, フェーダACCESS, PFL, SHIFT, MANUAL, AUTO, START スイッチ:
これらの単色自照スイッチは、各スイッチを押すと点灯し、もう一度押すと消 灯する。

② PROGRAMスイッチ:
このスイッチは、押すと赤色に点灯し、もう一度押すと消灯する。

③ PRESETスイッチ:
このスイッチは、押すとアンバー色に点灯し、もう一度押すと消灯する。

④ チャンネル選択スイッチ:
- PROGRAMスイッチが点灯 (赤色) 時に、このスイッチを押すと、赤色に点灯する。
- PRESETスイッチが点灯 (アンバー色) 時に、このスイッチを押すと、アンバー色に点灯する。
- PROGRAM及び、PRESETスイッチが両方点灯時に、このスイッチを押すとオレンジ色 (赤とアンバーの混合色) に点灯する。

⑤ チャンネルフェーダ:
SHIFTスイッチが点灯している状態で、チャンネルフェーダを上下させると、チャンネルステータス表示部 (ドットマトリックスLED) にその値 (0から255まで) が表示される。

⑥ トランジションフェーダ (PSTまたは、PGMフェーダ):
トランジションフェーダ (PSTまたはPGMフェーダ) を上下させると、DURATION TIME表示部 (ドットマトリックスLED) にその値 (0から255まで) が表示される。また、フェーダの上下の動きに合わせて、メーターLEDも上下に変化する。

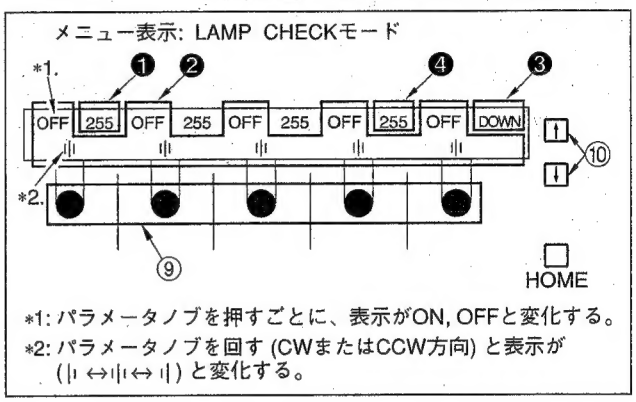
⑦ MASTERフェーダ:
MASTERフェーダを上下させると、メニュー表示部 ❶ にその値 (0から255まで) が表示される。(右図参照)

⑧ DELAY, EQ/FIL, SENDインジケータLED:
DISPLAYスイッチを押す (ON) と、ACCESSスイッチ、LOCALスイッチ、チャンネル選択スイッチのON, OFFに従ってこれらのLEDが点灯し、もう一度押す (OFF) と消灯する。

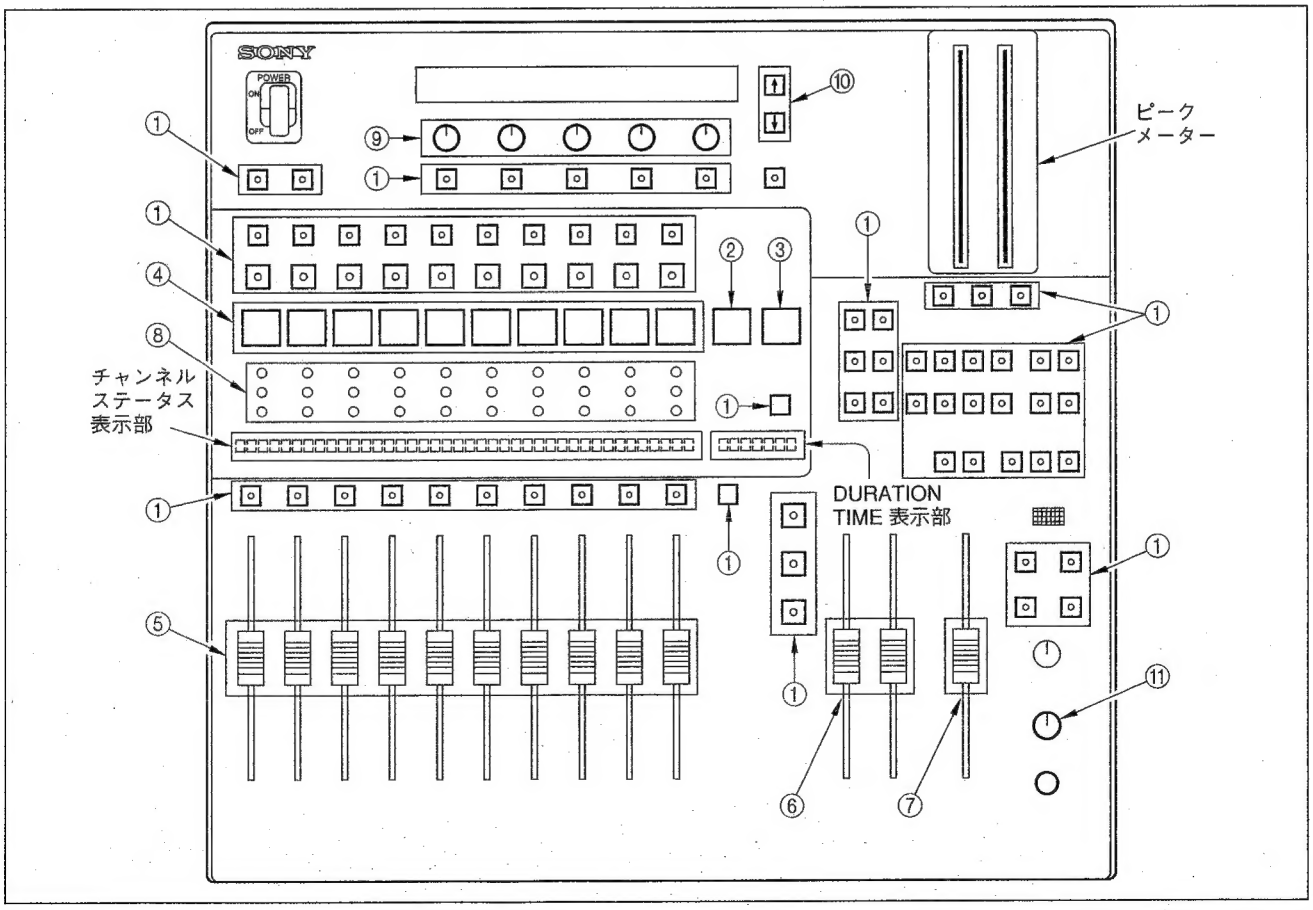
⑨ パラメータノブ:
パラメータノブに対応するメニュー表示部 ❷ に、パラメータノブのON/OFFと回転が表示される。
(右図参照)

⑩ ↑、↓ スイッチ:
↑ スイッチを押すと、メニュー表示部の ❸ に "UP" と表示される。
(下図参照)
↓ スイッチを押すと、メニュー表示部の ❸ に "DOWN" と表示される。
(下図参照)

⑪ MONITOR LEVELコントロール:
このコントロールを回すと、その値 (0から255まで表示) がメニュー表示部 ❹ に表示される。(下図参照)



*1: パラメータノブを押すごとに、表示がON, OFFと変化する。
*2: パラメータノブを回す (CWまたはCCW方向) と表示が (|ı ↔ı|ı ↔ ı|) と変化する。



1-3-2. DSP CHECKモード

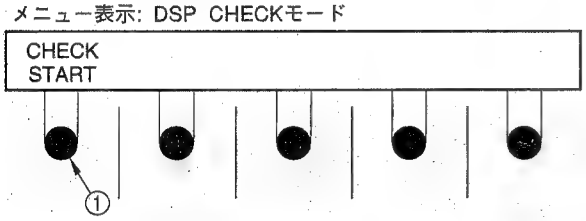
このモードはDMX-E2000のデジタル信号処理系のチェックを行う。

DSP CHECKモードの設定

(1) "SELF TESTサブメニュー" ("プログラムの起動方法" 参照) のMODE表示に対応するパラメータノブを押して、"DSP CHECK" モードを設定する。

(2) START表示 (SELF TESTサブメニュー) に対応するパラメータノブを押す。

メニュー表示: DSP CHECKモード

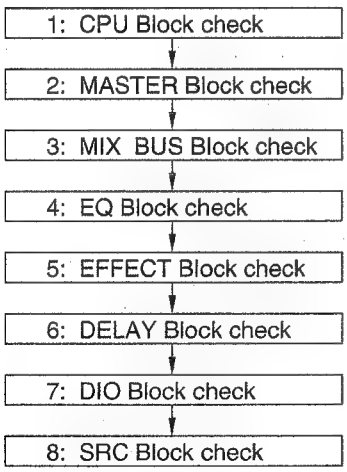


• チャンネルステータス表示部 (ドットマトリックスLED)

DMX-E2000 Self test: Push [START] Button

(3) CHECK START表示に対応するパラメータノブ①を押すと、DSP CHECKモードのチェックが開始される。
チェックは、以下のブロック (チェック項目) を順番に実行する。
プログラム実行中は、診断中のブロック名が、チャンネルステータス表示部に表示される。

チェック項目



診断結果

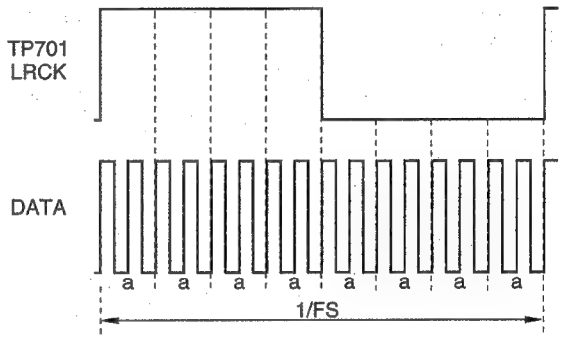
自己診断結果はチャンネルステータス表示部に表示される。

OKの場合: 各ブロックチェック項目の診断結果参照

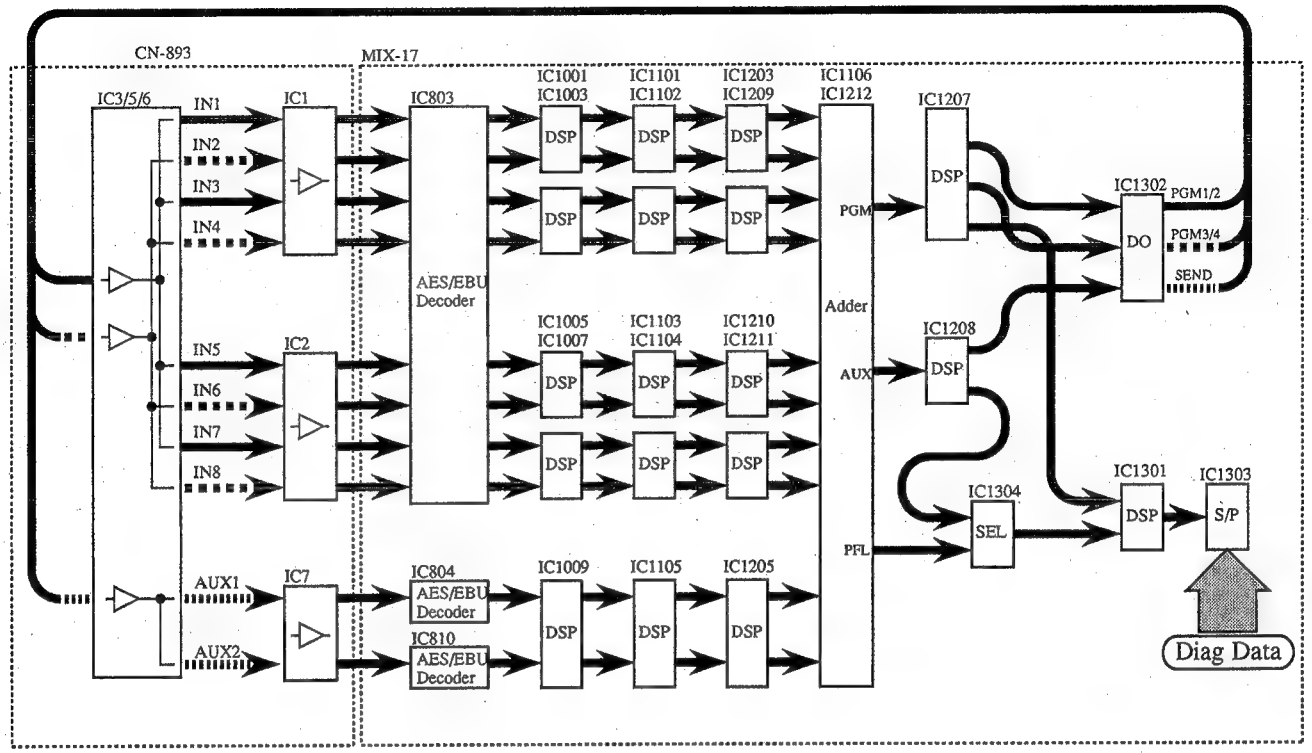
NGの場合: 自己診断プログラムを実行中、エラーが発見された場合、そのエラー状態でプログラムは停止し、チャンネルステータス表示部にICのリファレンスNo. (複数のリファレンスNo.) が表示される。

処置

表示されたICの入・出力のTP端子をオシロスコープを使用してチェックする。
チェックは、TP701/MIX-17基板に出力されているLRCK信号をトリガにして行う。



以下に各チェック項目について説明する。また、自己診断時のデータの流れを下図に示す。



自己診断時の注意事項

1. DMX-E2000がコンソール等に埋め込まれているため、リアパネルの各入･出力コネクタ間の接続 ("7: DIOブロック" および" 8: SRCブロック" チェック時) が行えない場合は、以下のメッセージが表示された時点で、自己診断の結果は正常と判断すること。

   チャンネルステータス表示部

Internal check: END GOOD!! [START]

   この場合は、入･出力ブロックのICは、チェックしていないため、実際にNORMALモードで、各入力コネクタから入力された音が、PGM (LINE), SEND出力コネクタから出力されることを確認する。

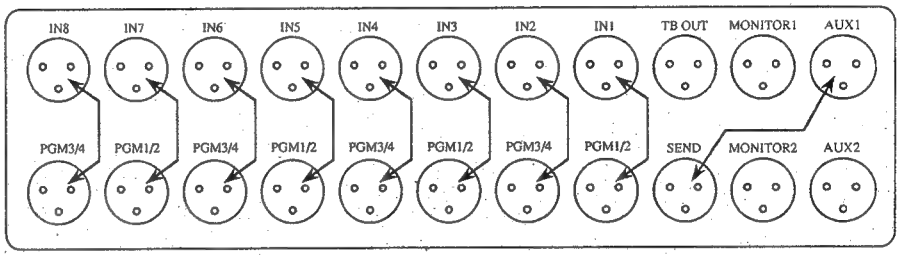
2. 自己診断中 (DSP CHECKモード時) に、モニターから大きな音が出力される場合があるため、モニタースピーカをドライブしているパワーアンプのボリュームを絞っておくこと。
   DMX-E2000のMONITOR VOLUMEはDigital volumeのため、このVOLUMEを絞っても、自己診断時には機能しない場合がある。

項 目	説 明
1: CPU IF Block check	このテストは、DSP (IC1301) の出力データをCPUでチェックする。 診断結果 OKの場合: チャンネルステータス表示部に CPU IF Block check: GOOD!! が表示される。 表示後、2: MASTER Block checkが実行される NGの場合: エラーが発生した時点で、診断プログラムは停止する。 DSP (IC1301) の出力データをオシロスコープでチェックして、データを確認する。
2: MASTAR Block check	このテストは、1: CPU IF Block checkが正常であれば実行される。 テストはMASTERブロックのDSP (IC1207, 1208) の出力データをCPUでチェックする。 出力データのチェックは、IC1207 → IC1208の順に行われる。 診断結果 OKの場合: チャンネルステータス表示部に MASTER Block check: GOOD!! が表示される。 表示後、3: MIX BUS Block checkが実行される。 NGの場合: エラーが発生した時点で、診断プログラムは停止し、チャンネルステータス表示部にICのリファレンスNo. が表示される。 表示されたICの入･出力をオシロスコープを使用してチェックする。 チェックは、"aaaa aaaaH (Hex)" または、"5555 5555H (Hex)" 以外のデータを出力しているICを見つけることで行う。
3: MIX BUS check	このテストは、2: MASTER Block checkが正常であれば実行される。 テストは、MIXブロックのDSP (IC1203, 1209, 1210, 1211, 1205) の出力データをCPUでチェックする。 出力データのチェックは、IC1203 → IC1209 → IC1210 → IC1211 → IC1205の順に行われる。 診断結果 OKの場合: チャンネルステータス表示部に MIX BUS Block check: GOOD!! が表示される。 表示後、4:EQ Block checkが実行される。 NGの場合: "2: MASTER Block check" に同じ

項 目	説 明
4: EQ Block check	このテストは、3: MIX BUS Block checkが正常であれば実行される。 テストは、MIXブロックのDSP (IC1101, 1102, 1103, 1104, 1105) の出力データをCPUでチェックする。 出力データのチェックは、IC1101 → IC1102 → IC1103 → IC1104 → IC1105の順に行われる。 診断結果 OKの場合: チャンネルステータス表示部に EQ Block check: GOOD!! が表示される。 表示後、5: EFECT Block checkが実行される。 NGの場合: "2: MASTER Block check" に同じ
5: EFFECT Block check	このテストは、4: EQ Block ckeckが正常であれば実行される。 テストは、EFFECTブロックのDSP (IC1001, 1003, 1005, 1007, 1009) の出力データをCPUでチェックする。 出力データのチェックは、IC1001 → IC1003 → IC1005 → IC1007 → IC1009の順に行われる。 診断結果 OKの場合: チャンネルステータス表示部に EFFECT Block check: GOOD!! が表示される。 表示後、6: DELAY Block checkが実行される。 NGの場合: "2: MASTER Block check" に同じ
6: DELAY Block check	このテストは "5: EFFECT Block check" が正常であれば実行される。 テストは、DSP (IC1001, 1003, 1005, 1007, 1009) に接続されているD. RAM (IC1002, 1004, 1006, 1008, 1010) について行う。 チェックは、IC1002 → IC1004 → IC1006 → IC1008 → IC1010の順に行われる。 診断結果 OKの場合: チャンネルステータス表示部に Internal check: END GOOD!! [START] が表示され、診断プログラムが停止する。 NGの場合: "2:MASTER Block check"に同じ
7: DIO Block check 8: SRC Block check	このテストは、入·出力ブロックも含めて各ブロックの信号経路をCPUでチェックする。 7: DIO Block checkでは、Sampling Rate Converterブロックは経由せず、8: SRC Block checkでは、Sampling Rate Converterブロックを経由する。 チェックは以下のように行う。 7: DIO Block check (1) 6: DELAYブロックのチェックが終了すると、診断プログラムはチャンネルステータス表示部に下記メッセージを表示して停止する。 チャンネルステータス表示部 Internal check: END GOOD!! [START] (続く)

項 目	説 明

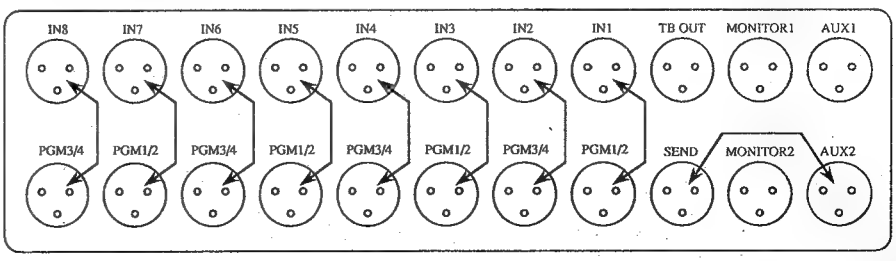
(2) CHECK START表示に対応したパラメータノブを押す。
チャンネルステータス表示部に
CONNECT: OUTPUT-INPUT SEND-AUX1 [START]
(3) 表示にしたがって、リアパネルの入･出力コネクタ間を下図のように接続する。
接続ケーブル: デジタルオーディオ用接続ケーブル(SONY ECD3C/10C/30C)
または相当品



(4) 接続後、CHECK START表示に対応したパラメータノブを押す。
チェックは、IN1に入力したデータから順にIN1 → IN2 → IN3 → IN4 → IN5 → IN6 → IN7 → IN8 → AUX1まで行われる。

診断結果
OKの場合: チャンネルステータス表示部に
CONNECT: OUTPUT-INPUT SEND-AUX2 [START]
を表示して、診断プログラムは停止する。
NGの場合: エラーが発生した時点で、診断プログラムは停止し、チャンネルステータス表示部にICのリファレンスNo. が表示される。
表示されたICの入･出力をオシロスコープを使用してチェックする。
チェックは、"aaaa aa00H (Hex)" または "5555 5500H (Hex)" 以外のデータを出力しているICを見つけることで行う。

8: SRC Block check
(1) 7: DIO Block check終了後、診断プログラムはチャンネルステータス表示部に下記メッセージを表示して停止する。
チャンネル表示部
CONNECT: OUTPUT-INPUT SEND-AUX2 [START]
(2) 表示に従って、AUX1とSENDコネクタ間の接続ケーブルを外し、AUX2とSENDコネクタ間を接続する。



(続く)

項 目	説 明
	(3) 接続後、CHECK START表示に対応したパラメータノブを押す。 AUX2の入力チェックが行われる。 診断結果 OKの場合: チャンネルステータス表示部に DMX-E2000 Self test: END GOOD!! と表示され、全ての診断プログラムは終了する。 NGの場合: エラーが発生した時点で、診断プログラムは停止し、チャンネルステータス表示部にICのリファレンスNo. が表示される。 表示されたICの入･出力をオシロスコープを使用して、チェックする。 チェックは、"aaXX XXXXH (Hex)" または "55XX XXXXH (Hex)" 以外のデータを出力しているICを見つけることで行う。 注) X: 任意の値

第 2 章
電気調整

本章では、修理および保守を行う際に必要な下記基板の電気調整について述べる。

MIX-17基板

2-1. 調整準備

2-1-1. 使用機器、治工具

使用機器

名称	主な仕様	機器名
周波数カウンタ	有効桁数： 6桁以上	HP5315A/Hewlett Packard または相当品
ｵｰﾃﾞｨｵﾚﾍﾞﾙﾒｰﾀ (ｵｰﾃﾞｨｵｱﾅﾗｲｻﾞ)	周波数 ： 10 Hz～100 kHz レンジ ： ～30 dBs バランス入力型	ST-1710A/SOUND TECHNOLOGY (ｵｰﾃﾞｨｵｱﾅﾗｲｻﾞ) または相当品

治工具

名称	部品番号
75 Ω終端器	1-695-542-11
調整ドライバ (2.0 mm)	7-770-731-03

2-2. 調整 (MIX-17基板)

注意: 本調整は、DMX-E2000の "SYSTEM MENU"、"TONE MENU" を使用して行う。
MENUの設定方法は、オペレーションマニュアルを参照すること。

スイッチ、コントロール設定

コントロールパネル部

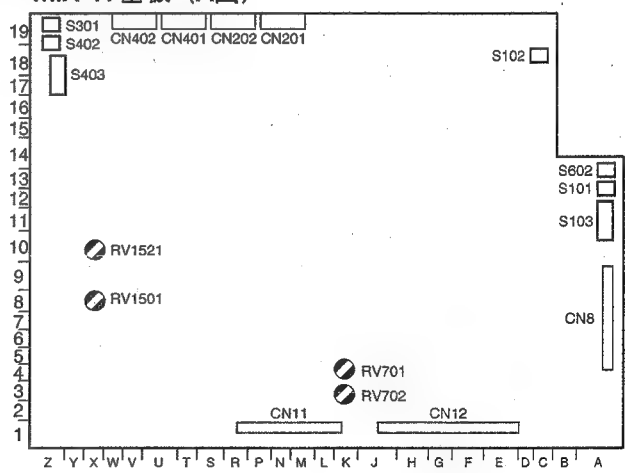
調整のためのスイッチ、コントロールの初期設定はなし。

MIX-17基板

S101: RESETスイッチ ..... OFF
S102: –
S103: DIPスイッチ
　S103-1, 2 ..... ON
　S103-3 to 8 ..... OFF
S301: RESETスイッチ ..... OFF
S402: –
S403: DIPスイッチ
　S403-1, 2 ..... ON
　S403-3 to 8 ..... OFF
S602: RESETスイッチ ..... OFF

調整箇所

MIX-17基板（A面）



2-2-1. PLL周波数調整

使用機器

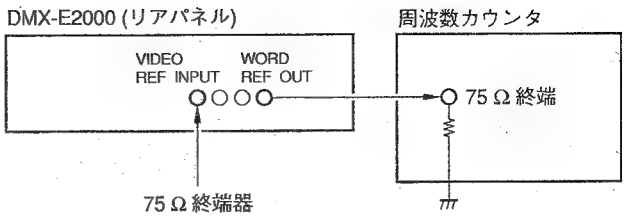
周波数カウンタ

治工具

75 Ω終端器

注意: VIDEO REF INPUT端子の接続ケーブルを外し、75 Ω終端器を接続する。

接続



調整

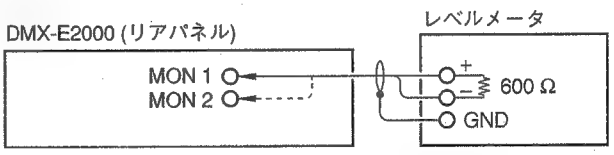
調整時の状態	規格	調整箇所
ステップ1 • SYSTEM MENUを下記のように設定する。 Fs : 48 kHz REF. : WORD REF. V: –	WORD OUT端子サンプリング周波数 = 48000±1 Hz	◐RV701/MIX-17基板 (K4)
ステップ2 • SYSTEM MENUを下記のように設定する。 Fs : 44.1 kHz REF. : WORD REF. V: –	WORD OUT端子サンプリング周波数 = 441000±1 Hz	◐RV702/MIX-17基板 (K3)

2-2-2. モニターレベル調整

使用機器

レベルメータ (オーディオアナライザ)

接続



調整

調整時の状態	規格	調整箇所
ステップ1 • レベルメータをMONITOR 1端子に接続する。 • TONE MENUを選択し、下記のように設定する。 LEVEL : –20 dB FREQ : 1 kHz MONI OUT: MONITOR出力 ON	MONITOR 1出力レベル = +4 dBs±0.1 dB	◐RV1501/MIX-17基板 (X, 8)
ステップ2 • レベルメータをMONITOR 2端子に接続する。 • TONE MENUを選択し、下記のように設定する。 LEVEL : –20 dB FREQ : 1 kHz MONI OUT: MONITOR出力 ON	MONITOR 2出力レベル = +4 dBs±0.1 dB	◐RV1521/MIX-17基板 (X, 10)

SECTION 1
SERVICE OVERVIEW

1-1. NOTES ON REPAIR PARTS

1-1-1. Notes on Repair Parts

(1) Safety Related Components Warning

The ⚠ marked components on the schematic diagrams, exploded views and electrical spare parts list are critical to safety. Replace only with the same components as specified.

(2) Standardization of Parts

Replacement parts supplied from the Sony Parts Center will sometimes have a different shape and outside view from the parts which are used in the unit.

This is due to accommodating improved parts and/or engineering changes or standardization of genuine parts.

This manual's exploded views and electrical spare parts list indicate the part numbers of current standardized genuine parts.

(3) Change of Parts

Regarding engineering parts changes, refer to section 17 "Changed Parts."

(4) Stock of Parts

The parts marked with "s" in the SP (Supply Code) column of the exploded views and electrical spare parts list are normally stocked for replacement purposes.

The parts marked with "o" in the SP column are not normally required for routine service work. Orders for parts marked with "o" with be processed, but allow for additional time for delivery.

(5) Units for Capacitors, Inductors and Resistors

The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors : μF
Resistors : Ω

1-1-2. Replacement Procedure for Chip Parts

Required Tools:

Soldering iron : 20W
If possible, use a soldering-iron tip heat-controller set to 270±10°C.

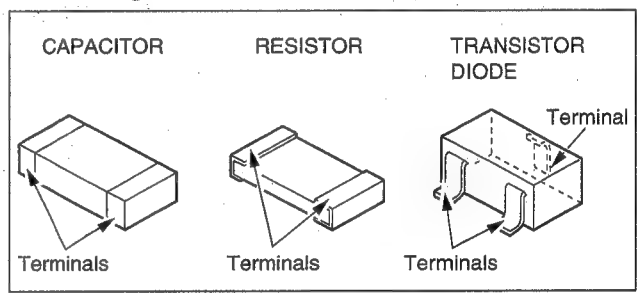
Braided wire (Desoldering metal braid) :
SOLDER TAUL or equivalent
Sony part No. 7-641-300-81

Solder : 0.6 mm dia. is recommended.

Tweezers

Soldering Conditions:

Soldering iron temperature : 270±10°C
Soldering time : 2 seconds per pin



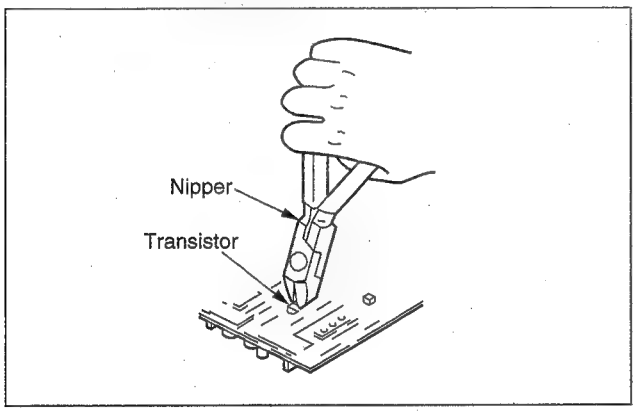
Replacement of Resistor and Capacitor

(1) Place the soldering-iron tip onto the chip part and heat it up until the solder is melted.
When the solder is melted, slide the chip part aside.
(2) Make sure that there is no pattern peeling, damage and/or bridge around the desoldering position.
(3) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
(4) Place new chip part in the desired position and solder both ends.

Note: Do not use a chip part again once it has been removed.

Transistor and Diode Replacement

(1) Cut the terminals of the chip part with a nipper.
(2) Remove the cut leads.
(3) Make sure that there is no pattern peeling, damage and/or bridges around the desoldering positions.
(4) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
(5) Place new chip part in the desired position and solder the terminals.



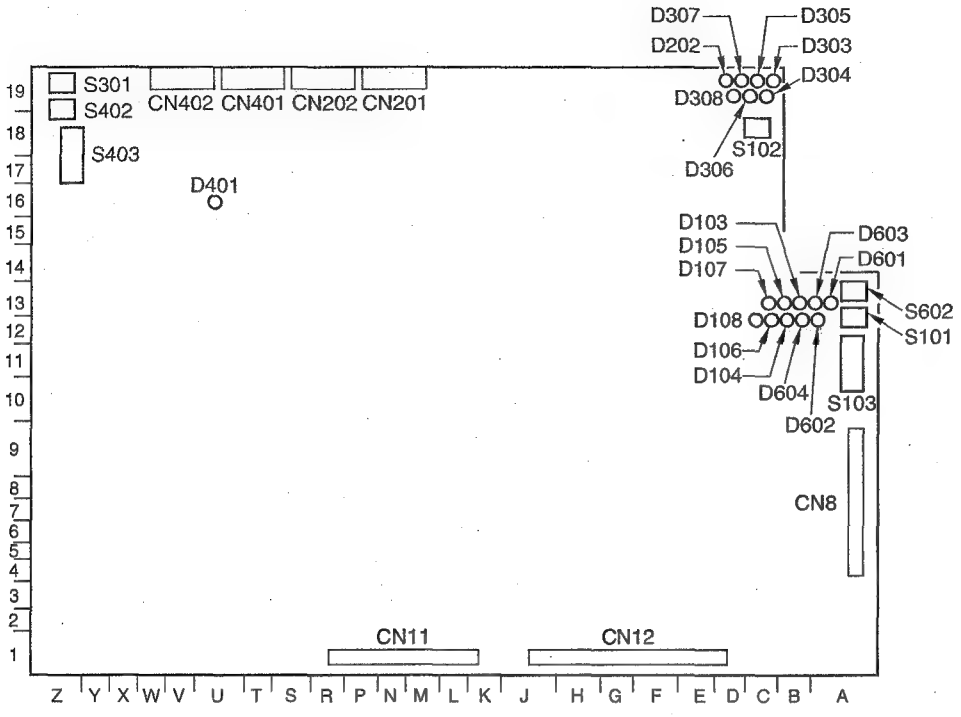
IC Replacement

(1) Using the braided wire, "SOLDER TAUL" Sony Part No. 7-641-300-81, remove the solder around the pins of the IC-chip to be removed.
(2) While heating up the pins, remove the pins one by one using sharp-pointed tweezers.
(3) Make sure that there is no pattern peeling, damage and/or bridges around the desoldering positions.
(4) After removing the chip part, presolder the area, in which the new chip part is to be placed, with a thin layer of solder.
(5) Place new chip part in the desired position and solder the pins.

NOTE: Once a chip part has been removed never use it again.

1-2. SWITCHES SETTING

MIX-17 Board



MIX-17 Board (A SIDE)

Switch

S101: RESET switch
HOST CPU RESET switch
S102: Not used
S103: DIP switch
Factory Setting
(Do not use of the other setting)
S103-1, 2 : ON
S103-3 to 8: OFF
S301: RESET switch
DSP CPU RESET switch
S402: Not use
S403: DIP switch
Factory Setting
(Do not use of the other setting)
S403-1, 2 : ON
S403-3 to 8: OFF
S602: RESET switch
DSP CPU RESET switch

LED

D103: During normal operation blinks
D104: During normal operation blinks
D105: During normal operation blinks
D106: During normal operation blinks
D107: Not use
D108: Not use
D202: HOST CPU HALT
D303: Not use
D304: Not use
D305: During normal operation blinks
D306: During normal operation blinks
D307: Not use
D308: Not use
D401: DSP CPU HALT
D601: 9PIN CPU TX ACTIVE
D602: 9PIN CPU RX ACTIVE
D603, D604 :
Both set to ON, the communication is possible.

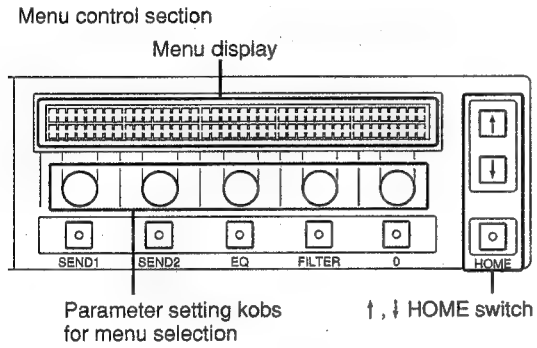
1-3. SELF-DIAGNOSTICS

This section describes the self-diagnostics program installed in the DMX-E2000.

1. "LAMP CHECK" program
2. "DSP CHECK" program

How to start the self-diagnostics program

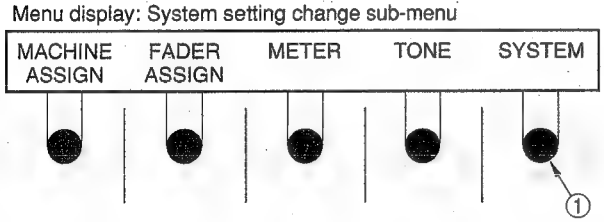
The self diagnosis program is started using (setting) the "SET UP MENU".
Use the menu function of the control panel to activate the menu.



Procedure

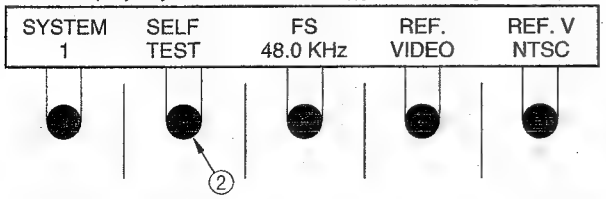
(1) From "Set-up menu 1", select the system setting change sub-menu (as shown below).
(For the menu setting procedure, refer to the OPERATION MANUAL "Menus" and "System Settings".)

Menu display: System setting change sub-menu



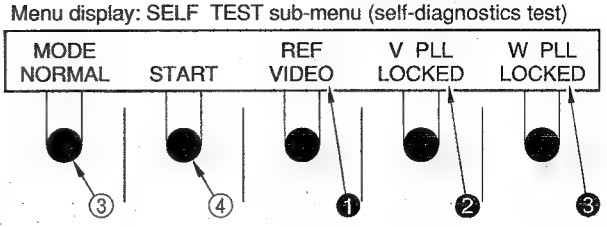
(2) Press the SYSTEM knob ① (system setting change sub-menu) to select "SYSTEM 1 Sub-menu".

Menu display: System 1 Sub-menu (system setting menu 1)



(3) Press the SELF TEST knob ② (SYSTEM 1 Sub-menu) to select the "SELF TEST Sub-menu".

Menu display: SELF TEST sub-menu (self-diagnostics test)



(4) Press the MODE knob ③ (SELF TEST sub-menu) to select the self-diagnostics program (LAMP CHECK or DSP CHECK) to be started. Every time the MODE knob ③ is pressed the mode advances in the order of NORMAL → LAMP CHK (LAMP CHECK) → DSP CHK (DSP CHECK).
From this menu, the following can be checked: Reference signal exists/not exist ❶ (NO REF/REF), Video PLL status ❷ (LOCKED/UNLOCK), and Word PLL status ❸ (LOCKED/UNLOCK).

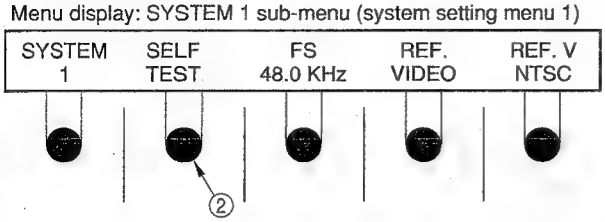
Returning to the Normal Run Program

After completing the self-diagnostics, return to the normal run program as followings.

Procedure

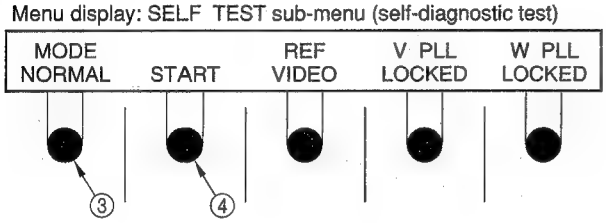
(1) Press the HOME switch to select the "SYSTEM 1 sub-menu".

Menu display: SYSTEM 1 sub-menu (system setting menu 1)



(2) Press the SELF TEST knob ② to select the SELF TEST sub-menu.

Menu display: SELF TEST sub-menu (self-diagnostic test)



(3) Press the MODE knob ③ to set the NORMAL mode.

(4) Press the START knob ④ to return to the normal run program (Set-up menu 1).

1-3-1. LAMP CHECK Mode

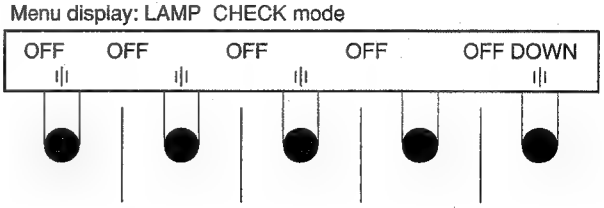
In this mode, the human interface block such as the switches and LEDs of the DMX-E2000 can be checked.

How to set the LAMP CHECK mode

(1) Open the "SELF TEST Sub-menu" (refer to the previous section "How to start the self-diagnostics program") and press the MODE knob ③ to set the "LAMP CHECK" mode.

(2) Press the START knob ④ (SELF TEST Sub-menu).

Menu display: LAMP CHECK mode



(3) Follow the check procedure shown below.

Check procedure

① The following single color, self-illuminating switches will turn on when pressed once, and will turn off when pressed again:
EDITOR ENABLE, PARALLEL ENABLE, HOME, ∮, FILTER, EQ, SEND1, SEND2, LINE, MONITOR, TONE, Matrix ACCESS, SOURCE Matrix, LINE Matrix, MONITOR Matrix, DIM, MUTE, MONITOR SELECT, TB OUT, Talkback SEND1/SEND2, DISPLAY, LOCAL, Fader ACCESS, PFL, SHIFT, MANUAL, AUTO, and START switches

② **PROGRAM switch**
This switch will light in red when pressed once, and will turn off when pressed again.

③ **PRESET switch**
This switch will light in amber when pressed once, and will turn off when pressed again.

④ **Channel select switch**
- When this switch is pressed while the PROGRAM switch is lit (red), it will light in red.
- When this switch is pressed while the PRESET switch is lit (amber), it will light in amber.
- When this switch is pressed while both the PROGRAM and PRESET switches are lit, it will light in orange (mixture of red and amber).

⑤ **Channel fader**
When the channel fader is moved up and down while the SHIFT switch is lit, the channel status display area (dot matrix LEDs) shows the value (from 0 to 255).

⑥ **Transition fader (PST or PGM fader)**
When the transition fader (PST or PGM) is moved up and down, the DURATION TIME display area (dot matrix LEDs) shows the value (from 0 to 255). The meter LEDs will change the display up or down as the fader is moved.

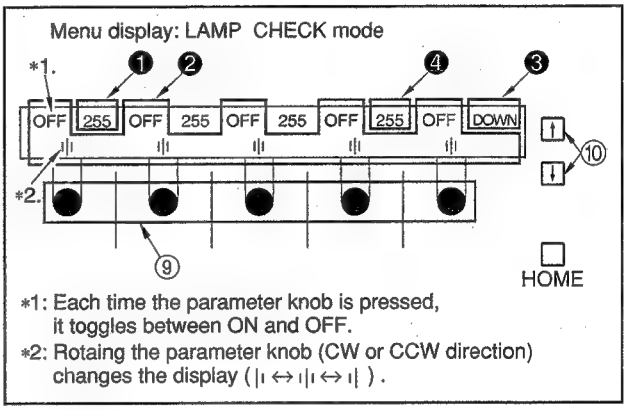
⑦ **MASTER fader**
When the MASTER fader is moved up and down, the menu display area ❶ shows the value (from 0 to 255). (See the figure on the right.)

⑧ **DELAY, EQ/FIL, SEND indicator LEDs**
When the DISPLAY switch is pressed (ON), these LEDs light according to ON or OFF of the ACCESS switch, LOCAL switch and Channel select switch. The LEDs will go off when pressed again (OFF).

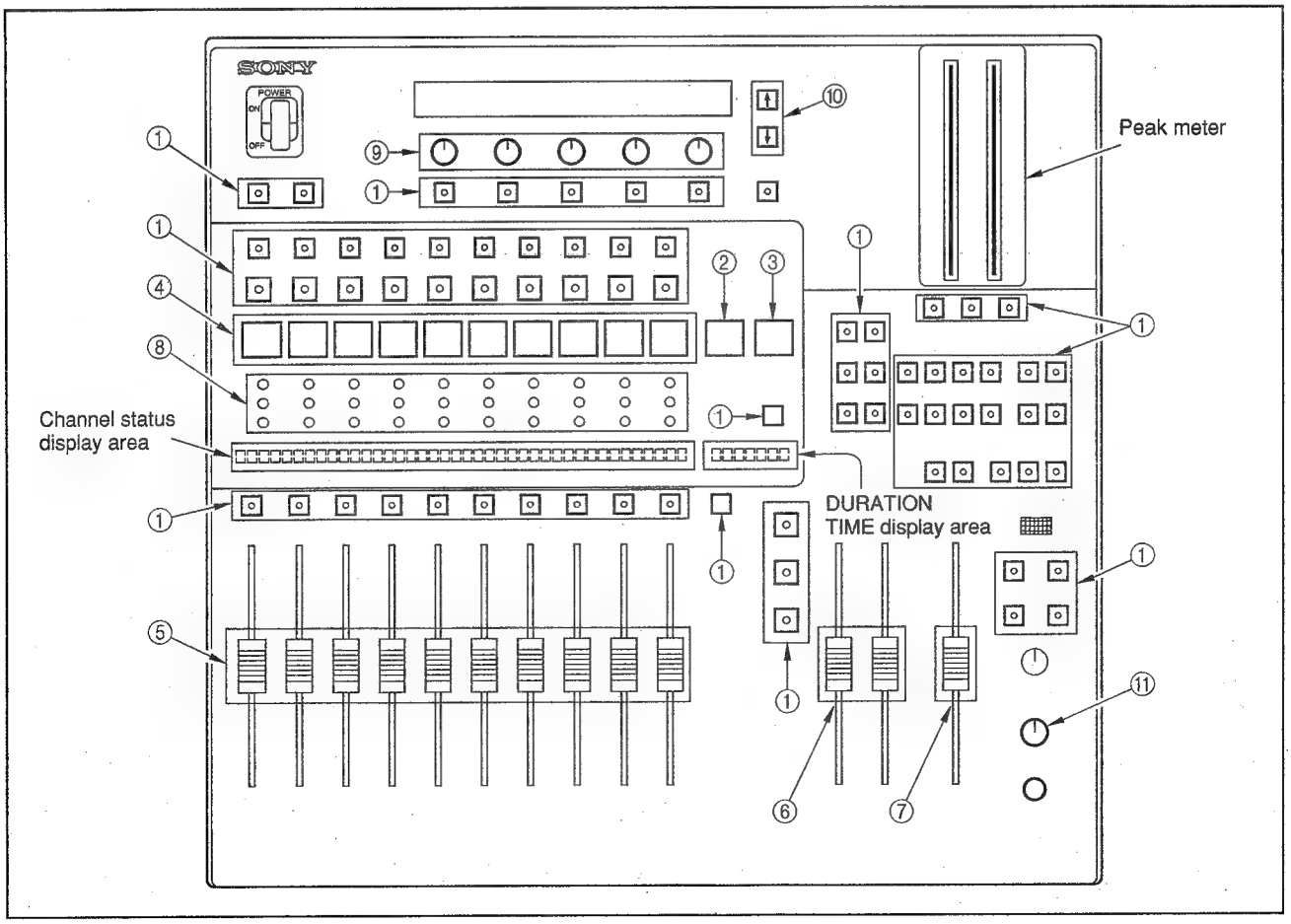
⑨ **Parameter setting knob**
The menu display area ❷ displays ON or OFF and the rotation of the parameter setting knob as the knob is turned. (See the figure on the right.)

⑩ **[↑][↓]switch**
When the [↑] switch is pressed, "UP" is displayed on the menu display area ❸.
(See the figure below.)
When the [↓] switch is pressed, "DOWN" is displayed on the menu display area ❸.
(See the figure below.)

⑪ **MONITOR LEVEL control**
When this control is changed, the menu display area ❹ shows the value (from 0 to 255).
(See the figure below.)



*1: Each time the parameter knob is pressed, it toggles between ON and OFF.
*2: Rotaing the parameter knob (CW or CCW direction) changes the display (|ı ↔ ı|ı ↔ ı|) .



1-3-2. DSP CHECK Mode

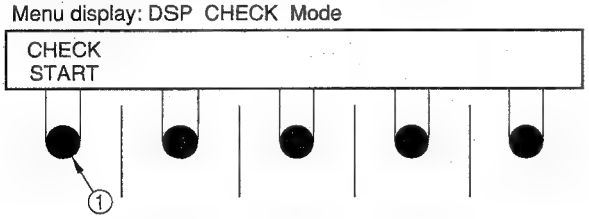
Use this mode to check the digital signal processing circuit.

How to set the DSP CHECK mode

(1) Press the MODE knob (SELF TEST sub-menu) (refer to the section "How to start the self-diagnostics"), to set the "DSP CHECK" mode.

(2) Press the START knob (SELF TEST Sub-menu).

Menu display: DSP CHECK Mode

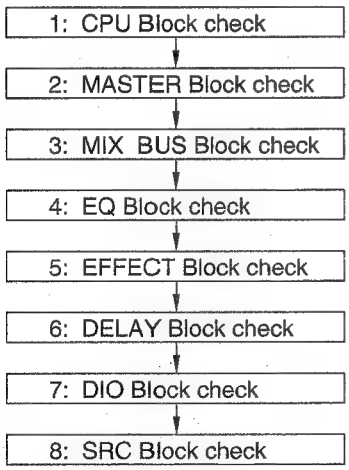


• Channel status display area (dot matrix LEDs)

DMX-E2000 Self test: Push [START] Button

(3) Press the CHECK START knob ① to start checking in DSP CHECK mode. The following blocks (check items) are checked in order.
While the program is running, the name of the block being checked is shown on the channel status display area.

Check item



Diagnostics result

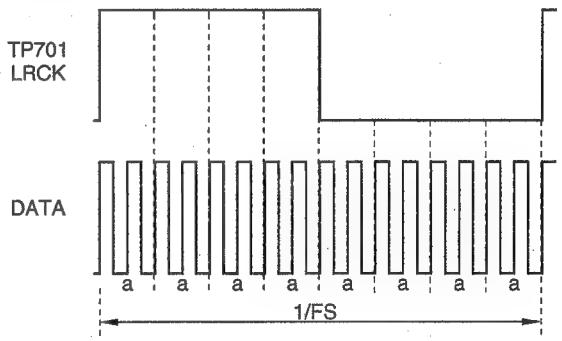
The results of the self-diagnostics are shown on the channel status display area.

If the result is OK: Refer to the following paragraphs describing the check items and the diagnostics results of respective blocks.

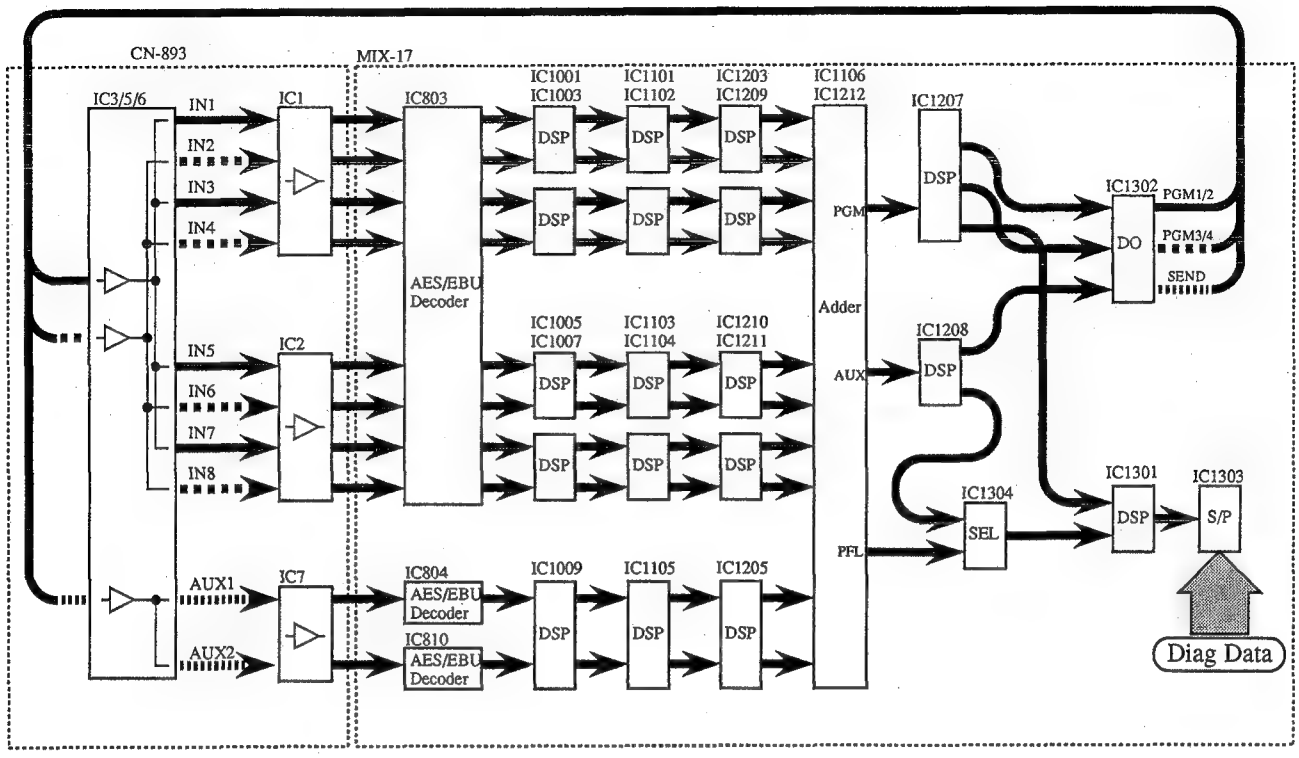
If the result is NG: If an error is diagnosed by the self-diagnostics program, the program is stopped with the error status, and the IC reference number (including more than two reference numbers) is displayed on the channel status display area.

Remedy

Check the input and output TP pins of the displayed IC using an oscilloscope.
Trigger the oscilloscope with an LRCK signal on the TP701/MIX-17 board.



The check items and data flow in the self-diagnostics program are shown below.



Precautions on self-diagnostics

1. Because the DMX-2000 is fitted to a console, it is very difficult to check the signal paths between the input and output connectors on the rear panel (items number "7: DIO block check" and "8: SRC block check"). The machine is thus diagnosed as normal if the following message is displayed.

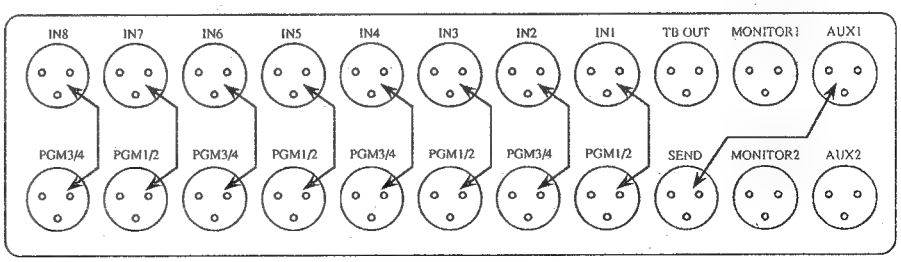
   Channel status display area

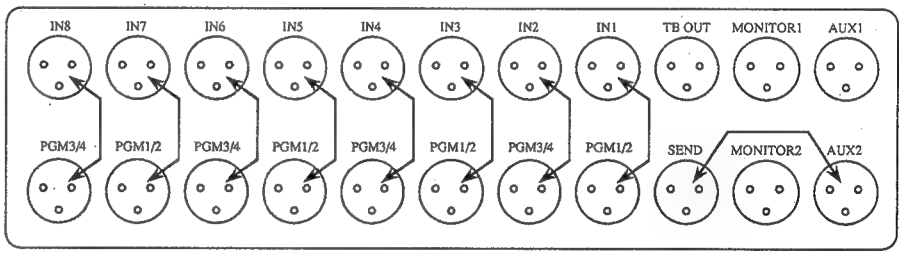
Internal check: END GOOD!! [START]

   In this case, the actual ICs in the input and output blocks are not checked. Check that the sound input to the respective input connectors is actually output from the PGM (LINE) and SEND output connector in NORMAL mode.

2. A fairly loud sound may come from the monitor speaker during self diagnostics (in DSP CHECK mode). Turn down the sound volume of the power amplifier which drives the monitor speaker.
   The MONITOR VOLUME control of DMX-E2000 cannot turn down the sound volume during self diagnostics because it is the digital volume.

Item	Description
1: CPU IF Block check	The DSP (IC1301) output data is checked by the CPU. **Diagnostics result** If OK: The channel status display area shows: CPU IF Block check: GOOD!! After this is displayed, "2: MASTER Block check" is executed. If NG: The diagnosis program stops at the step where the error occurred. Observe the DSP (IC1301) output data with an oscilloscope and check the data.
2: MASTER Block check	This test can be started when the above "1: CPU IF Block check" is OK. The DSPs (IC1207, IC1208) output data of the MASTER block are checked by the CPU. The output data of IC1207 is checked first, then the data of IC1208 is checked. **Diagnostics result** If OK: The channel status display area shows: MASTER Block check: GOOD!! After this is displayed, "3: MIX BUS Block check" is executed. If NG: The diagnostics program stops at the step where the error occurred. The IC reference numbers are indicated on the channel status display area. Check the input and output data of the indicated ICs with an oscilloscope. and look for the IC outputting data other than "aaaa aaaaH (Hex)" or "5555 5555H (Hex)" since this IC is defective.
3: MIX BUS Block check	This test can be started if the above "2: MASTER Block check" is OK. The DSPs (IC1203, IC1209, IC1210, IC1211, IC1205) output data of the MIX block are checked by the CPU. The check is executed in the order of IC1203 → IC1209 → IC1210 → IC1211 → IC1205. **Diagnostics result** If OK: The channel status display area shows: MIX BUS Block check: GOOD!! After this is displayed, "4: EQ Block check" is executed. If NG: Same as for the previous "2: MASTER Block check".
4: EQ Block check	This test can be started if the above "3: MIX BUS Block check" is OK. The DSPs (IC1101, IC1102, IC1103, IC1104, IC1105) output data of the EQ block are checked by the CPU. The check is executed in the order of IC1101 → IC1102 → IC1103 → IC1104 → IC1105. **Diagnostics result** If OK: The channel status display area shows: EQ Block check: GOOD!! After this is displayed, "5: EFFECT Block check" is executed. If NG: Same as for the previous "2: MASTER Block check".

Item	Description
5: EFFECT Block check	This test can be started if the above "4: EQ Block check" is OK. The DSPs (IC1001, IC1003, IC1005, IC1007, IC1009) output data of the EFFECT block are checked by the CPU. The check is executed in the order of IC1001 → IC1003 → IC1005 → IC1007 → IC1009. **Diagnostics result** If OK: The channel status display area shows: EFFECT Block check: GOOD!! After this is displayed, "6: Delay Block check" is executed. If NG: Same as for the previous "2: MASTER Block check".
6: Delay Block check	This test can be started if the above "5: EFFECT Block check" is OK. The D. RAMs (IC1002, IC1004, IC1006, IC1008, IC1010) connected to the DSPs (IC1001, IC1003, IC1005, IC1007, IC1009) are checked by this test. The check is executed in the order of IC1002 → IC1004 → IC1006 → IC1008 → IC1010. **Diagnostics result** If OK: The channel status display area shows the following message and the diagnosis program terminates: Internal check: END GOOD!! [START] If NG: Same as for the previous "2: MASTER Block check".
7: DIO Block check 8: SRC Block check	This test checks the signal paths in the respective signal processing blocks including input and output circuits. The test "7: DIO Block check" bypasses the Sampling Rate Converter block while the test "8: SRC Block check" checks the Sampling Rate Converter block. 7: DIO Block check (1) When "6: DELAY block check" is completed, the self diagnostics program terminates with the following message displayed on the channel status display area. Channel status display area shows: Internal check: END GOOD!! [START] (2) Press the parameter knob corresponding to the CHECK START display. The channel status display area shows: CONNECT: OUTPUT-INPUT SEND-AUX1 [START] (3) Connect cables between input and output connector on the rear panel as shown below. Connecting cable: Digital audio connection cable (SONY ECD3C/10C/30C) or equivalent.  (to see next page)

Item	Description
	(4) After connection, press the parameter setting knob corresponding to the CHECK START display. The check is executed in the order IN1 → IN2 → IN3 → IN4 → IN5 → IN6 → IN7 → IN8 → AUX1, starting from the data input to IN1. **Diagnostics result** If OK: The channel status display area shows the following message and the diagnostics program terminates: CONNECT: OUTPUT-INPUT SEND-AUX2 [START] If NG: The diagnostics program stops at the step where the error occurred. The IC reference numbers are indicated on the channel status display area. Check the input and output data of the indicated ICs with an oscilloscope, and look for the IC outputting data other than "aaaa aa00H (Hex)" or "5555 5500H (Hex)" since this IC is defective. 8: SRC Block check (1) When "7: DIO block check" is completed, the self-diagnostics program terminates with the following message displayed on the channel status display area. Channel status display area shows: CONNECT: OUTPUT-INPUT SEND-AUX2 [START] (2) Remove cables between the AUX1 and SEND connectors, and connect cables between the AUX2 and SEND connectors, as shown.  (3) After connection, press the parameter setting knob corresponding to the CHECK START display. The AUX2 input check is executed. **Diagnostics result** If OK: The channel status display area shows the following message and the diagnostics program terminates: DMX-E2000 Self test: END GOOD!! If NG: The diagnostics program stops at the step where the error occurred. The IC reference numbers are indicated on the channel status display area. Check the input and output data of the indicated ICs with an oscilloscope, and look for the IC outputting data other than "aaXX XXXXH (Hex)" or "55XX XXXXH (Hex)" since this IC is defective. **note) X: arbitrary number**

SECTION 2
ELECTRICAL ALIGNMENT

This section explains the electrical adjustments required when following board is repaired or maintained.

MIX-17 BOARD

2-1. ALIGNMENT PREPARATION

2-1-1. Equipment Required/Tool

Equipment Required

Name	Minimum Specifications	Model
Frequency counter	Effective digits : 6 digits	HP5315A/Hewlett Packard or equivalent
Audio level meter (Audio analyzer)	Frequency bandwidth : 10 Hz to 100 kHz Resolution range : Possible to 30 dBs Balanced input type	ST-1710A/SOUND TECHNOLOGY (Audio analyzer) or equivalent

Tool

Name	Part No.
75 Ω terminator	1-695-542-11
Adjustment screwdriver	7-770-731-03

2-2. ADJUSTMENT (MIX-17 Board)

Note: The adjustment is performed using "SYSTEM MENU" or "TONE MENU" of the DMX-E2000.
For detail of the menu setting, refer to Operation manual.

Switch and Control settings:

Control Panel

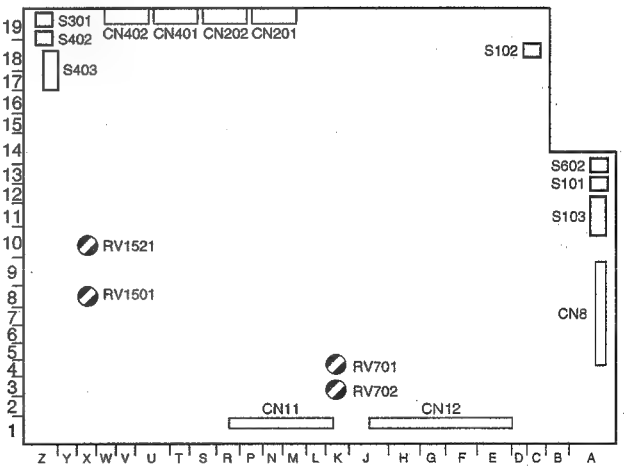
No initial settings of Switch and Control for this adjustment.

MIX-17 Board

S101: RESET switch ·····OFF
S102: —
S103: DIP switch
S103-1, 2 ·····ON
S103-3 to 8·····OFF
S301: RESET switch ·····OFF
S402: —
S403: DIP switch
S403-1, 2 ·····ON
S403-3 to 8·····OFF
S602: RESET switch ·····OFF

Adjustment location

MIX-17 BOARD (A SIDE)



2-2-1. PLL Frequency Adjustment

Equipment required

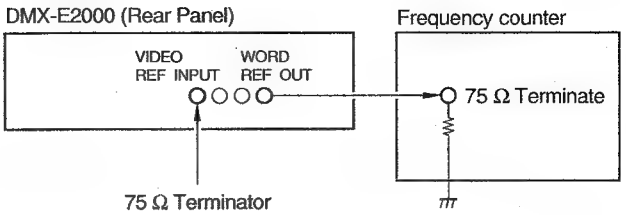
Frequency counter

Tool

75 Ω terminator

Note: Remove the connector cable to VIDEO REF INPUT, connect the 75 Ω terminator.

Connection



Adjustment procedures:

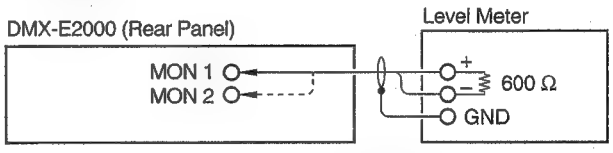
Adjustment conditions	Specifications	Adjustment location
Step 1 • Set to the SYSTEM MENU as follows. Fs : 48 kHz REF. : WORD REF. V : —	WORD OUT connector sampling frequency = 48000±1 Hz	⊘RV701/MIX-17 board (K, 4)
Step 2 • Set to the SYSTEM MENU as follows. Fs : 44.1 kHz REF. : WORD REF. V : —	WORD OUT connector sampling frequency = 441000±1 Hz	⊘RV702/MIX-17 board (K, 3)

2-2-2. Monitor Level Adjustment

Equipment required

Level meter (Audio analyzer)

Connection



Adjustment procedures:

Adjustment conditions	Specifications	Adjustment location
Step 1 • Connect the level meter to MONITOR 1 connector. • Select the TONE MENU, set as follows. LEVEL : –20 dB FREQ : 1 kHz MONI OUT : MONITOR Output ON	MONITOR 1 Output level = +4 dBs±0.1 dB	⊘RV1501/MIX-17 board (X, 7)
Step 2 • Connect the level meter to MONITOR 2 connector. • Select the TONE MENU, set as follows. LEVEL : –20 dB FREQ : 1 kHz MONI OUT : MONITOR Output ON	MONITOR 2 Output level = +4 dBs±0.1 dB	⊘RV1521/MIX-17 board (X, 9)

SECTION 3
BOARD LAYOUTS

Board Name	Function	PAGE
ASW-32	ASSIGN SWITCH BOARD	3-2
CN-893	CONNECTOR BOARD	3-10
CN-894	CONNECTOR BOARD	3-10
CN-940	CONNECTOR BOARD	3-11
MIX-17	MIXING BOARD	3-4
MT-92	METER BOARD	3-6
SW-644	SWITCH BOARD	3-8
VR-174, MIC	VOLUME CONTROL BOARD	3-11

3 - 1

ASW-32 BOARD

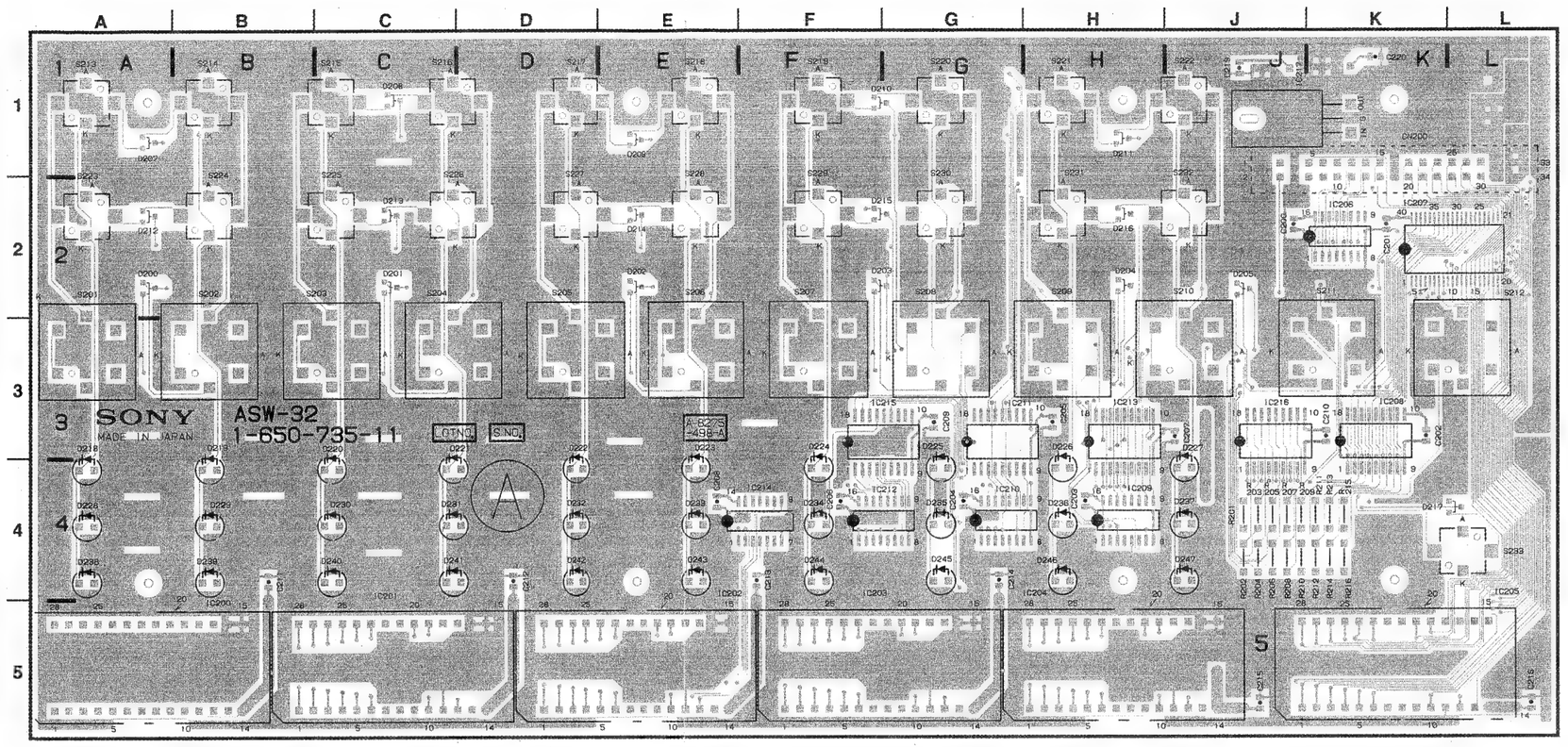
DMX-E2000

ASW-32 (1-650-735-11)

CNI200	A-5	IC200	A-5
CNI201	C-5	IC201	C-5
CNI202	E-5	IC202	E-5
CNI203	F-5	IC203	F-5
CNI204	H-5	IC204	H-5
CNI205	K-5	IC205	K-5
		IC206	K-2
*CN200	K-1	IC207	K-2
		IC208	K-4
D200	A-2	IC209	H-4
D201	C-2	IC210	G-4
D202	E-2	IC211	G-4
D203	F-2	IC212	F-4
D204	H-2	IC213	H-4
D205	J-2	IC214	E-4
D207	A-1	IC215	F-4
D208	C-1	IC216	J-4
D209	E-1	IC217	K-1
D210	F-1		
D211	H-1	S201	A-3
D212	A-2	S202	B-3
D213	C-2	S203	C-3
D214	E-2	S204	C-3
D215	F-2	S205	D-3
D216	H-2	S206	E-3
D217	L-4	S207	F-3
D218	A-4	S208	G-3
D219	B-4	S209	H-3
D220	C-4	S210	J-3
D221	C-4	S211	K-3
D222	D-4	S212	L-3
D223	E-4	S213	A-1
D224	F-4	S214	B-1
D225	G-4	S215	C-1
D226	H-4	S216	C-1
D227	J-4	S217	D-1
D228	A-4	S218	E-1
D229	B-4	S219	F-1
D230	C-4	S220	G-1
D231	C-4	S221	H-1
D232	D-4	S222	J-1
D233	E-4	S223	A-2
D234	F-4	S224	B-2
D235	G-4	S225	C-2
D236	H-4	S226	C-2
D237	J-4	S227	D-2
D238	A-4	S228	E-2
D239	B-4	S229	F-2
D240	C-4	S230	G-2
D241	C-4	S231	H-2
D242	D-4	S232	J-2
D243	E-4	S233	L-4
D244	F-4		
D245	G-4		
D246	H-4		
D247	J-4		

* : SOLDERING SIDE

A SIDE



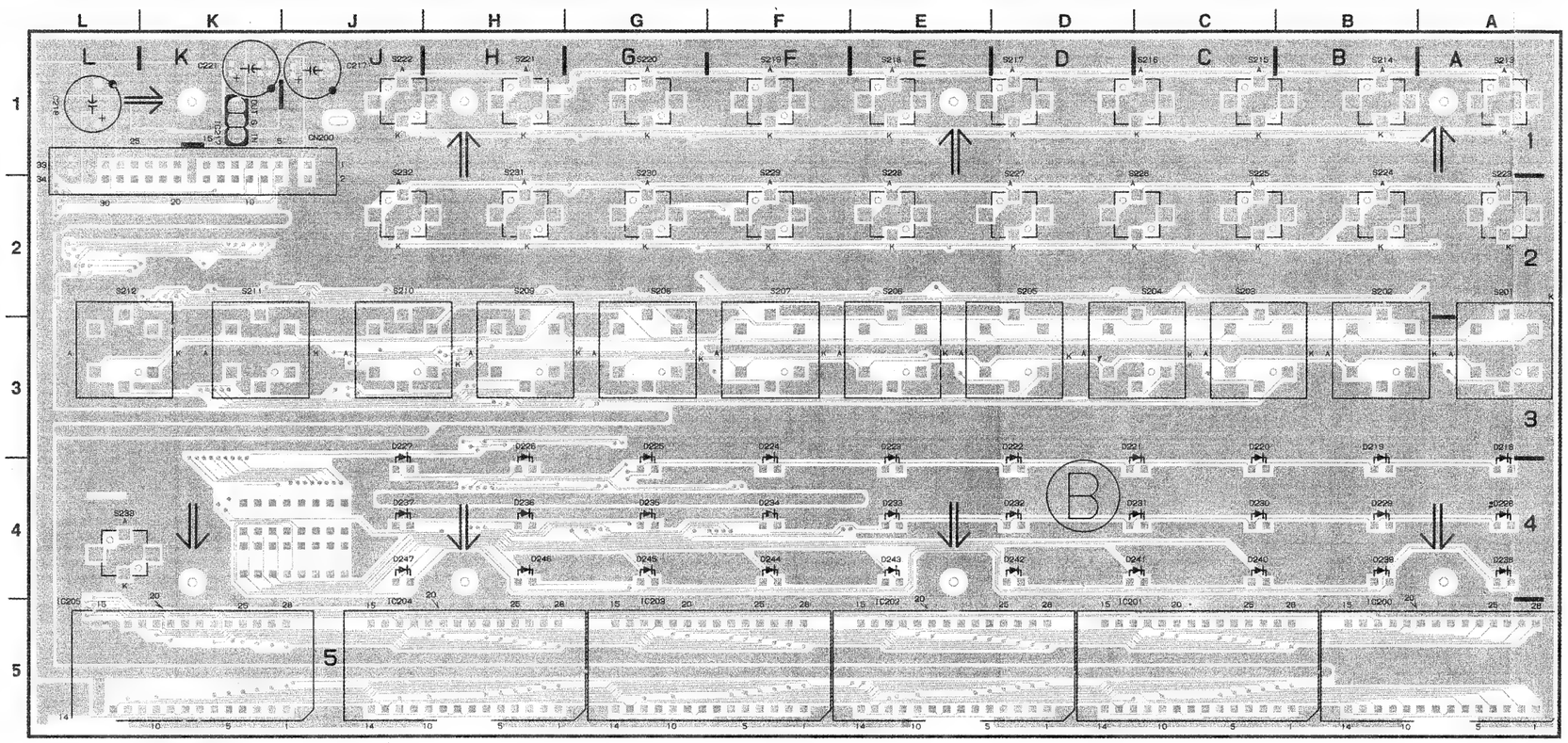
1-650-735-11 A SIDE

A Side is the same as Component Side.

3 - 2

ASW-32 BOARD

B SIDE



1-650-735-11 B SIDE

B Side is the same as Solder Side.

DMX-E2000

ASW-32 (1-650-735-11)

CN1200	A-5	IC200	A-5
CN1201	C-5	IC201	C-5
CN1202	E-5	IC202	E-5
CN1203	F-5	IC203	F-5
CN1204	H-5	IC204	H-5
CN1205	K-5	IC205	K-5
		IC206	K-2
*CN200	K-1	IC207	K-2
		IC208	K-4
D200	A-2	IC209	H-4
D201	C-2	IC210	G-4
D202	E-2	IC211	G-4
D203	F-2	IC212	F-4
D204	H-2	IC213	H-4
D205	J-2	IC214	E-4
D207	A-1	IC215	F-4
D208	C-1	IC216	J-4
D209	E-1	IC217	K-1
D210	F-1		
D211	H-1	S201	A-3
D212	A-2	S202	B-3
D213	C-2	S203	C-3
D214	E-2	S204	C-3
D215	F-2	S205	D-3
D216	H-2	S206	E-3
D217	L-4	S207	F-3
D218	A-4	S208	G-3
D219	B-4	S209	H-3
D220	C-4	S210	J-3
D221	C-4	S211	K-3
D222	D-4	S212	L-3
D223	E-4	S213	A-1
D224	F-4	S214	B-1
D225	G-4	S215	C-1
D226	H-4	S216	C-1
D227	J-4	S217	D-1
D228	A-4	S218	E-1
D229	B-4	S219	F-1
D230	C-4	S220	G-1
D231	C-4	S221	H-1
D232	D-4	S222	J-1
D233	E-4	S223	A-2
D234	F-4	S224	B-2
D235	G-4	S225	C-2
D236	H-4	S226	C-2
D237	J-4	S227	D-2
D238	A-4	S228	E-2
D239	B-4	S229	F-2
D240	C-4	S230	G-2
D241	C-4	S231	H-2
D242	D-4	S232	J-2
D243	E-4	S233	L-4
D244	F-4		
D245	G-4		
D246	H-4		
D247	J-4		

* : SOLDERING SIDE

DMX-E2000

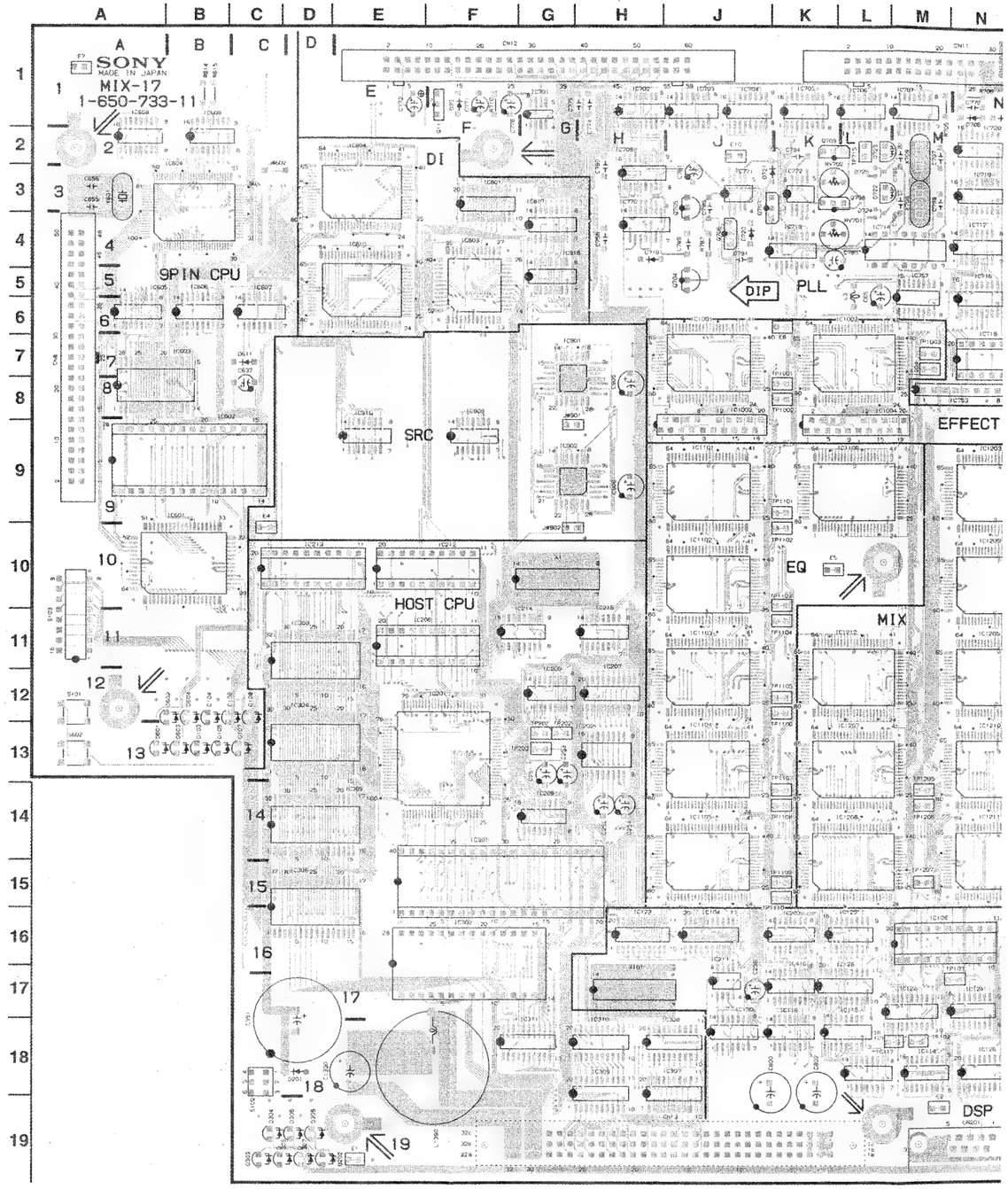
MIX-17 (1-650-733-11)

CNI106	M-16	IC106	M-16	IC607	C-6	IC1104	J-13	TP705	T-9
CNI206	E-11	IC107	P-16	IC608	A-2	IC1105	J-14	TP713	P-6
CNI212	E-10	IC109	P-18	IC609	B-2	IC1106	L-9	TP715	L-2
CNI213	C-10	IC110	P-18	IC701	G-1	IC1203	N-9	TP1001	K-8
CNI301	E-15	IC114	M-18	IC702	H-1	IC1205	N-12	TP1002	K-8
CNI302	E-17	IC115	K-18	IC703	J-1	IC1207	L-13	TP1003	M-7
CNI406	Y-16	IC116	K-18	IC704	J-1	IC1208	L-14	TP1004	M-7
CNI412	T-17	IC117	L-18	IC705	K-1	IC1209	N-10	TP1005	T-10
CNI503	V-14	IC118	R-18	IC706	L-1	IC1210	N-13	TP1006	T-9
CNI602	A-9	IC119	S-18	IC707	M-1	IC1211	N-14	TP1007	T-11
CNI718	N-7	IC120	R-18	IC708	H-3	IC1212	L-12	TP1008	T-11
		IC121	S-18	IC709	R-4	IC1301	U-14	TP1009	T-13
CN8	A-7	IC122	M-18	IC710	N-3	IC1302	T-15	TP1010	T-14
CN11	M-1	IC123	H-16	IC711	P-3	IC1303	U-12	TP1101	K-9
CN12	G-1	IC124	N-18	IC712	N-4	IC1304	R-15	TP1102	K-10
*CN13	J-19	IC125	K-16	IC713	K-4	IC1310	Z-4	TP1103	K-10
		IC126	N-18	IC714	L-4	IC1311	Z-6	TP1104	K-11
D32	F-1	IC128	K-17	IC715	P-6	IC1312	Z-8	TP1105	K-12
D103	B-13	IC130	J-18	IC716	N-6	IC1313	Z-9	TP1106	K-12
D104	B-12	IC131	R-19	IC717	P-4	IC1341	V-11	TP1107	K-14
D105	B-13	IC201	F-13	IC718	N-7	IC1342	Z-6	TP1108	K-14
D106	C-12	IC202	H-13	IC720	N-2	IC1343	Z-9	TP1109	K-15
D107	C-13	IC203	K-16	IC721	P-2	IC1501	X-7	TP1110	K-15
D108	C-12	IC204	V-16	IC722	S-4	IC1502	X-5	TP1201	R-9
D201	D-18	IC205	X-16	IC750	S-6	IC1521	X-9	TP1202	R-10
D202	D-19	IC206	E-11	IC751	R-6	IC1522	X-9	TP1203	R-12
D303	C-19	IC207	H-12	IC752	S-7	IC1531	V-11	TP1204	R-12
D304	C-19	IC208	G-14	IC753	M-8	IC1551	W-5	TP1205	M-14
D305	C-19	IC209	G-12	IC754	S-6	IC1553	W-9	TP1206	M-14
D306	D-19	IC211	J-17	IC755	S-7			TP1207	M-15
D307	D-19	IC212	E-10	IC757	M-6	Q11	F-1	TP1208	R-10
D308	D-19	IC213	C-10	IC758	R-8	Q704	J-5	TP1209	R-11
D401	U-16	IC214	F-11	IC759	S-8	Q705	J-3	TP1211	R-14
D601	A-13	IC215	H-11	IC760	R-7	Q706	J-4	TP1212	R-14
D602	B-12	IC301	E-15	IC762	R-8	Q707	K-3	TP1213	R-15
D603	B-13	IC302	E-17	IC770	H-4	Q708	K-3	TP1214	R-15
D604	B-12	IC303	C-12	IC771	J-3	Q709	K-2		
D611	C-7	IC304	C-13	IC772	K-3	Q1501	U-11	X1	G-10
D705	N-1	IC305	C-14	IC801	F-3			X101	H-17
D706	N-1	IC306	C-16	IC803	F-5	RV701	K-4	X601	A-3
D719	H-4	IC307	H-19	IC804	E-3	RV702	K-3	X701	S-9
D720	J-4	IC308	H-18	IC806	Y-1	RV1501	X-7	X708	M-3
D721	K-3	IC309	H-19	IC807	X-1	RV1521	X-9	X709	M-2
D724	L-3	IC310	H-18	IC808	Z-1				
D725	L-3	IC311	F-18	IC809	U-6	RY1501	W-7		
D1501	U-11	IC401	W-18	IC810	E-5	RY1502	W-9		
D1502	U-11	IC402	U-18	IC811	U-8	RY1503	T-10		
		IC403	W-16	IC812	U-9				
E1	E-19	IC406	Y-16	IC814	U-3	S101	A-12		
E2	M-19	IC407	Y-17	IC817	G-4	S102	C-18		
E3	Y-19	IC408	Y-18	IC818	G-5	S103	A-11		
E4	C-10	IC409	T-18	IC901	G-7	S301	Z-19		
E5	K-10	IC410	K-17	IC902	G-9	S402	Z-18		
E6	Z-10	IC411	U-16	IC909	F-9	S403	Z-18		
E7	A-1	IC412	T-17	IC910	E-9	S602	A-13		
E8	K-6	IC501	W-12	IC1001	J-7				
E9	T-4	IC502	Z-12	IC1002	H-9	TP101	M-18		
E10	J-2	IC503	V-14	IC1003	L-7	TP102	M-18		
E11	X-3	IC504	V-15	IC1004	K-9	TP103	N-17		
E12	W-7	IC505	U-15	IC1005	S-9	TP201	G-13		
		IC506	X-15	IC1006	R-10	TP202	G-13		
FL1301	U-1	IC507	Z-15	IC1007	S-11	TP203	G-13		
FL1302	W-1	IC601	B-10	IC1008	R-12	TP4-3	U-17		
		IC602	A-9	IC1009	S-13	TP404	U-17		
IC100	R-16	IC603	A-8	IC1010	R-14	TP701	T-8		
IC101	S-16	IC604	B-3	IC1101	J-9	TP702	T-5		
IC102	T-16	IC605	A-6	IC1102	J-10	TP703	T-7		
IC104	J-16	IC606	B-6	IC1103	J-12	TP704	T-9		

* : SOLDERING SIDE

MIX-17 BOARD

A SIDE

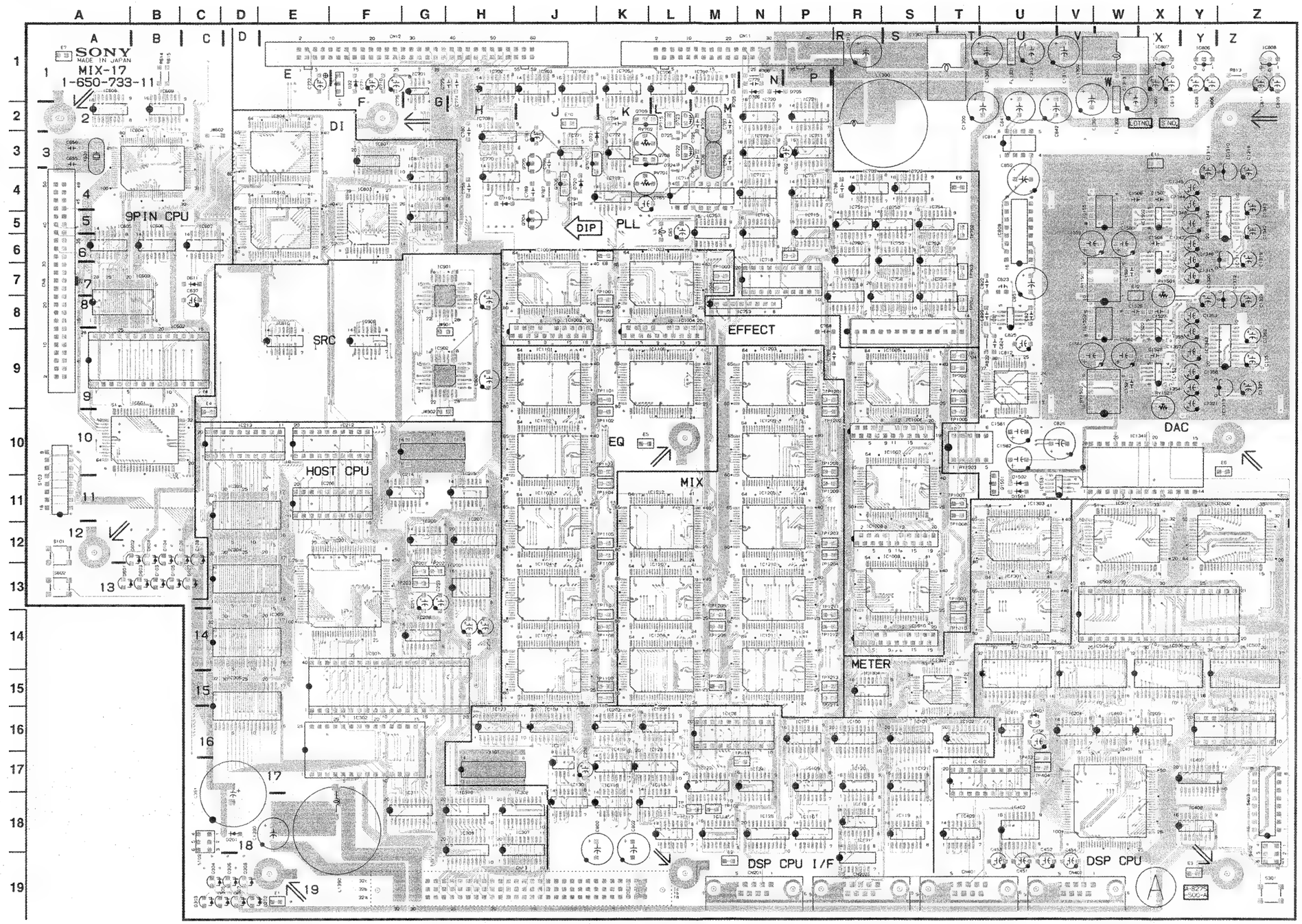


1-650-733-11 A SIDE

A Side is the same as Component Side.

MIX-17 BOARD

A SIDE

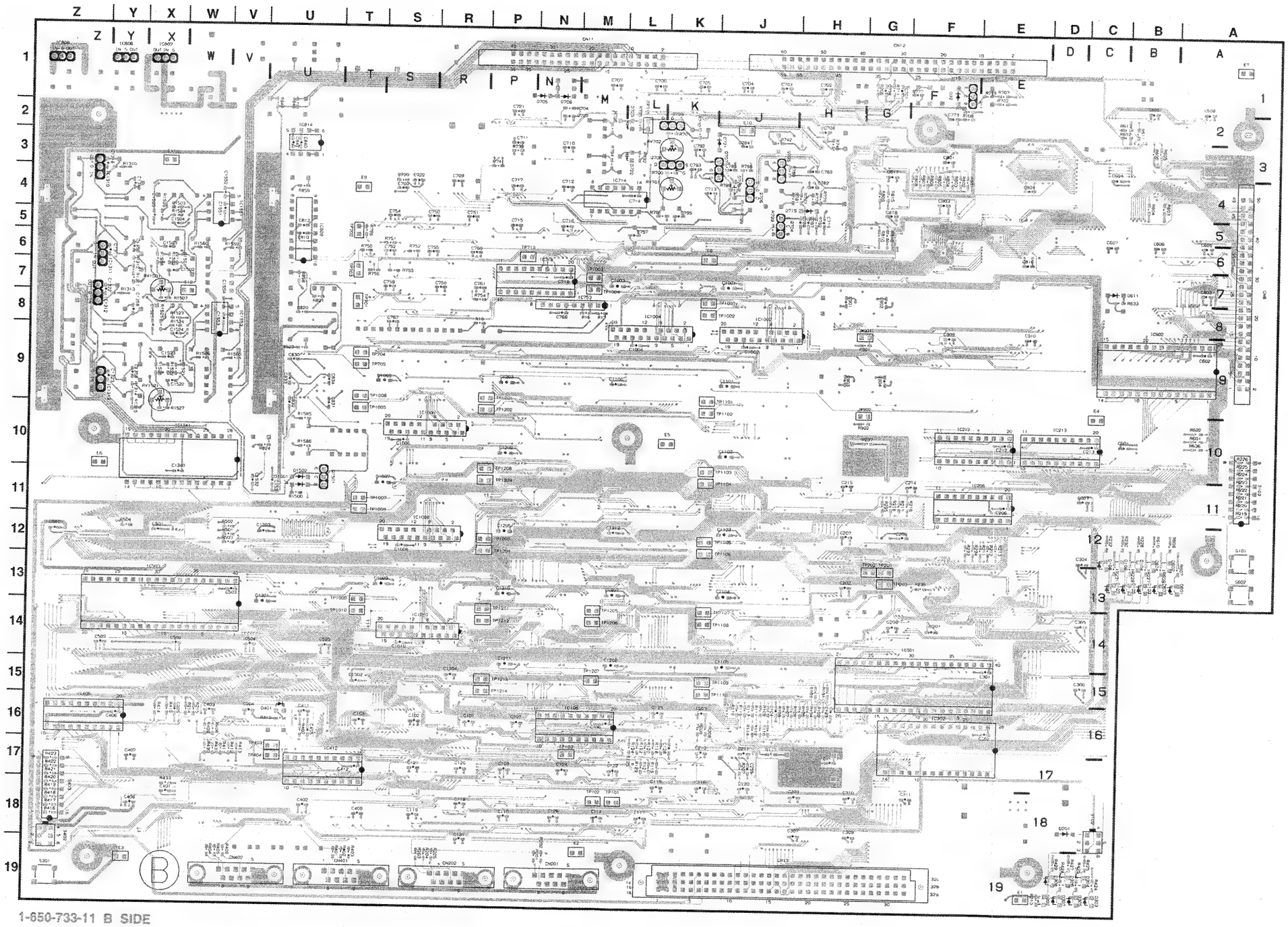


1-650-733-11 A SIDE

A Side is the same as Component Side.

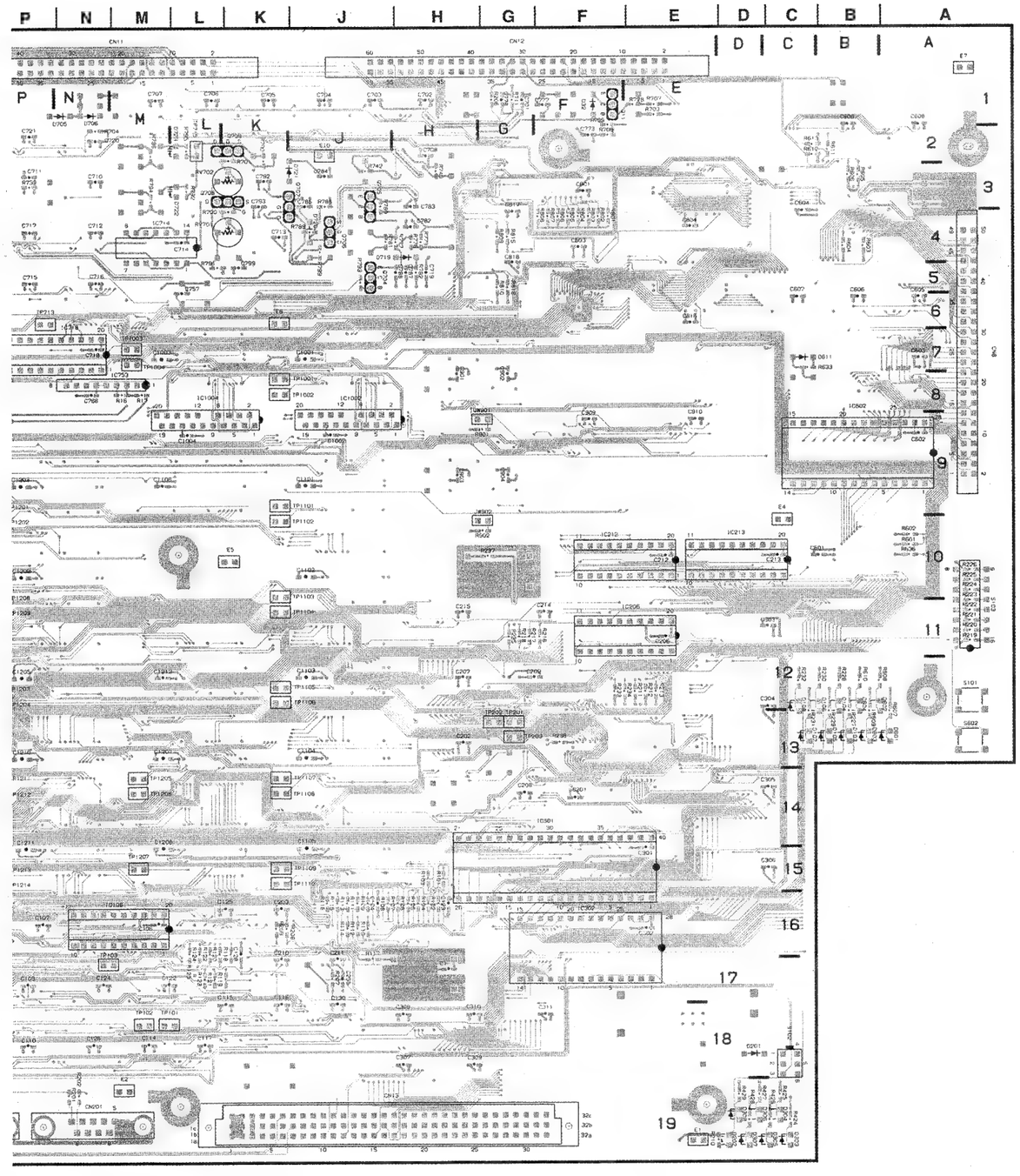
MIX-17 BOARD

B SIDE



1-650-733-11 B SIDE

B Side is the same as Solder Side.



DMX-E2000

MIX-17 (1-650-733-11)

CNI106	M-16	IC106	M-16	IC607	C-6	IC1104	J-13	TP705	T-9
CNI206	E-11	IC107	P-16	IC608	A-2	IC1105	J-14	TP713	P-6
CNI212	E-10	IC109	P-18	IC609	B-2	IC1106	L-9	TP715	L-2
CNI213	C-10	IC110	P-18	IC701	G-1	IC1203	N-9	TP1001	K-8
CNI301	E-15	IC114	M-18	IC702	H-1	IC1205	N-12	TP1002	K-8
CNI302	E-17	IC115	K-18	IC703	J-1	IC1207	L-13	TP1003	M-7
CNI406	Y-16	IC116	K-18	IC704	J-1	IC1208	L-14	TP1004	M-7
CNI412	T-17	IC117	L-18	IC705	K-1	IC1209	N-10	TP1005	T-10
CNI503	V-14	IC118	R-18	IC706	L-1	IC1210	N-13	TP1006	T-9
CNI602	A-9	IC119	S-18	IC707	M-1	IC1211	N-14	TP1007	T-11
CNI718	N-7	IC120	R-18	IC708	H-3	IC1212	L-12	TP1008	T-11
		IC121	S-18	IC709	R-4	IC1301	U-14	TP1009	T-13
CN8	A-7	IC122	M-18	IC710	N-3	IC1302	T-15	TP1010	T-14
CN11	M-1	IC123	H-16	IC711	P-3	IC1303	U-12	TP1101	K-9
CN12	G-1	IC124	N-18	IC712	N-4	IC1304	R-15	TP1102	K-10
*CN13	J-19	IC125	K-16	IC713	K-4	IC1310	Z-4	TP1103	K-10
		IC126	N-18	IC714	L-4	IC1311	Z-6	TP1104	K-11
D32	F-1	IC128	K-17	IC715	P-6	IC1312	Z-8	TP1105	K-12
D103	B-13	IC130	J-18	IC716	N-6	IC1313	Z-9	TP1106	K-12
D104	B-12	IC131	R-19	IC717	P-4	IC1341	V-11	TP1107	K-14
D105	B-13	IC201	F-13	IC718	N-7	IC1342	Z-6	TP1108	K-14
D106	C-12	IC202	H-13	IC720	N-2	IC1343	Z-9	TP1109	K-15
D107	C-13	IC203	K-16	IC721	P-2	IC1501	X-7	TP1110	K-15
D108	C-12	IC204	V-16	IC722	S-4	IC1502	X-5	TP1201	R-9
D201	D-18	IC205	X-16	IC750	S-6	IC1521	X-9	TP1202	R-10
D202	D-19	IC206	E-11	IC751	R-6	IC1522	X-9	TP1203	R-12
D303	C-19	IC207	H-12	IC752	S-7	IC1531	V-11	TP1204	R-12
D304	C-19	IC208	G-14	IC753	M-8	IC1551	W-5	TP1205	M-14
D305	C-19	IC209	G-12	IC754	S-6	IC1553	W-9	TP1206	M-14
D306	D-19	IC211	J-17	IC755	S-7			TP1207	M-15
D307	D-19	IC212	E-10	IC757	M-6	Q11	F-1	TP1208	R-10
D308	D-19	IC213	C-10	IC758	R-8	Q704	J-5	TP1209	R-11
D401	U-16	IC214	F-11	IC759	S-8	Q705	J-3	TP1211	R-14
D601	A-13	IC215	H-11	IC760	R-7	Q706	J-4	TP1212	R-14
D602	B-12	IC301	E-15	IC762	R-8	Q707	K-3	TP1213	R-15
D603	B-13	IC302	E-17	IC770	H-4	Q708	K-3	TP1214	R-15
D604	B-12	IC303	C-12	IC771	J-3	Q709	K-2		
D611	C-7	IC304	C-13	IC772	K-3	Q1501	U-11	X1	G-10
D705	N-1	IC305	C-14	IC801	F-3			X101	H-17
D706	N-1	IC306	C-16	IC803	F-5	RV701	K-4	X601	A-3
D719	H-4	IC307	H-19	IC804	E-3	RV702	K-3	X701	S-9
D720	J-4	IC308	H-18	IC806	Y-1	RV1501	X-7	X708	M-3
D721	K-3	IC309	H-19	IC807	X-1	RV1521	X-9	X709	M-2
D724	L-3	IC310	H-18	IC808	Z-1				
D725	L-3	IC311	F-18	IC809	U-6	RY1501	W-7		
D1501	U-11	IC401	W-18	IC810	E-5	RY1502	W-9		
D1502	U-11	IC402	U-18	IC811	U-8	RY1503	T-10		
		IC403	W-16	IC812	U-9				
E1	E-19	IC406	Y-16	IC814	U-3	S101	A-12		
E2	M-19	IC407	Y-17	IC817	G-4	S102	C-18		
E3	Y-19	IC408	Y-18	IC818	G-5	S103	A-11		
E4	C-10	IC409	T-18	IC901	G-7	S301	Z-19		
E5	K-10	IC410	K-17	IC902	G-9	S402	Z-18		
E6	Z-10	IC411	U-16	IC909	F-9	S403	Z-18		
E7	A-1	IC412	T-17	IC910	E-9	S602	A-13		
E8	K-6	IC501	W-12	IC1001	J-7				
E9	T-4	IC502	Z-12	IC1002	H-9	TP101	M-18		
E10	J-2	IC503	V-14	IC1003	L-7	TP102	M-18		
E11	X-3	IC504	V-15	IC1004	K-9	TP103	N-17		
E12	W-7	IC505	U-15	IC1005	S-9	TP201	G-13		
		IC506	X-15	IC1006	R-10	TP202	G-13		
FL1301	U-1	IC507	Z-15	IC1007	S-11	TP203	G-13		
FL1302	W-1	IC601	B-10	IC1008	R-12	TP4-3	U-17		
		IC602	A-9	IC1009	S-13	TP404	U-17		
IC100	R-16	IC603	A-8	IC1010	R-14	TP701	T-8		
IC101	S-16	IC604	B-3	IC1101	J-9	TP702	T-5		
IC102	T-16	IC605	A-6	IC1102	J-10	TP703	T-7		
IC104	J-16	IC606	B-6	IC1103	J-12	TP704	T-9		

* : SOLDERING SIDE

DMX-E2000

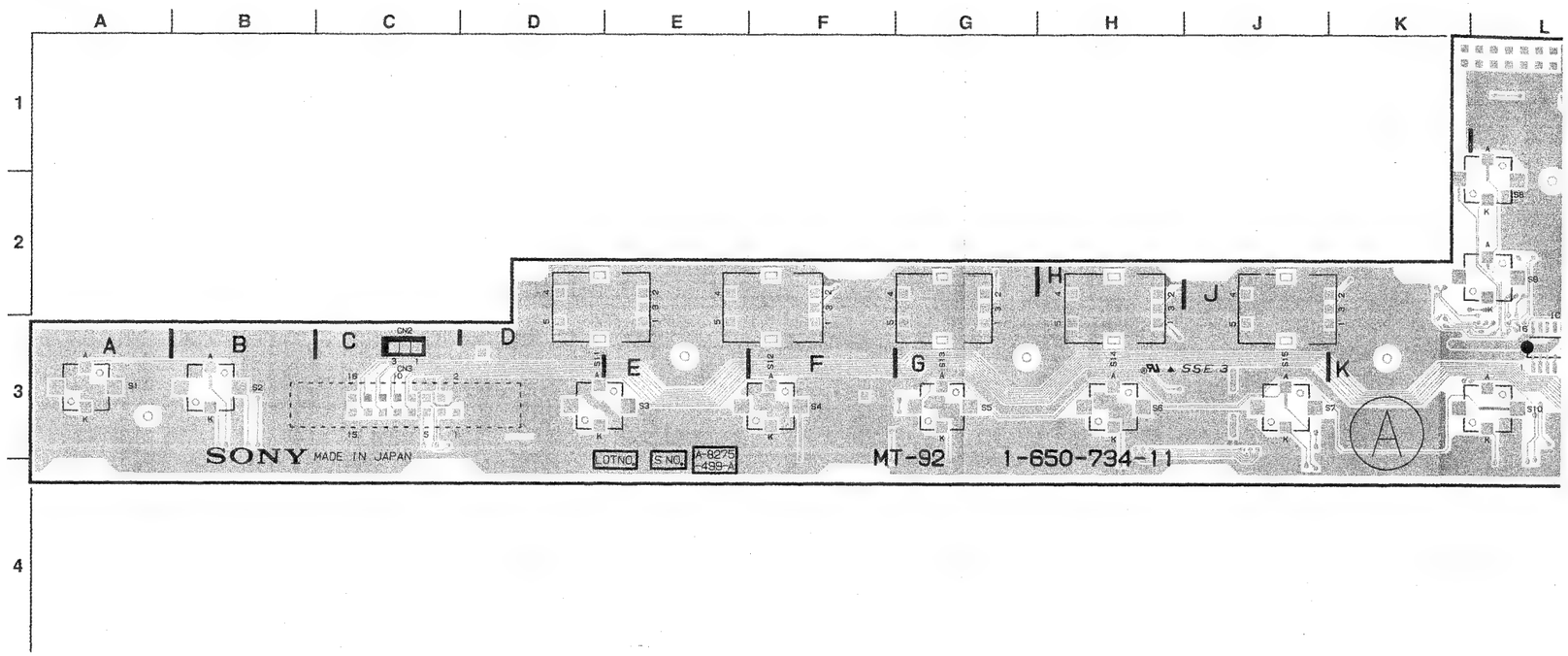
MT-92 (1-650-734-11)

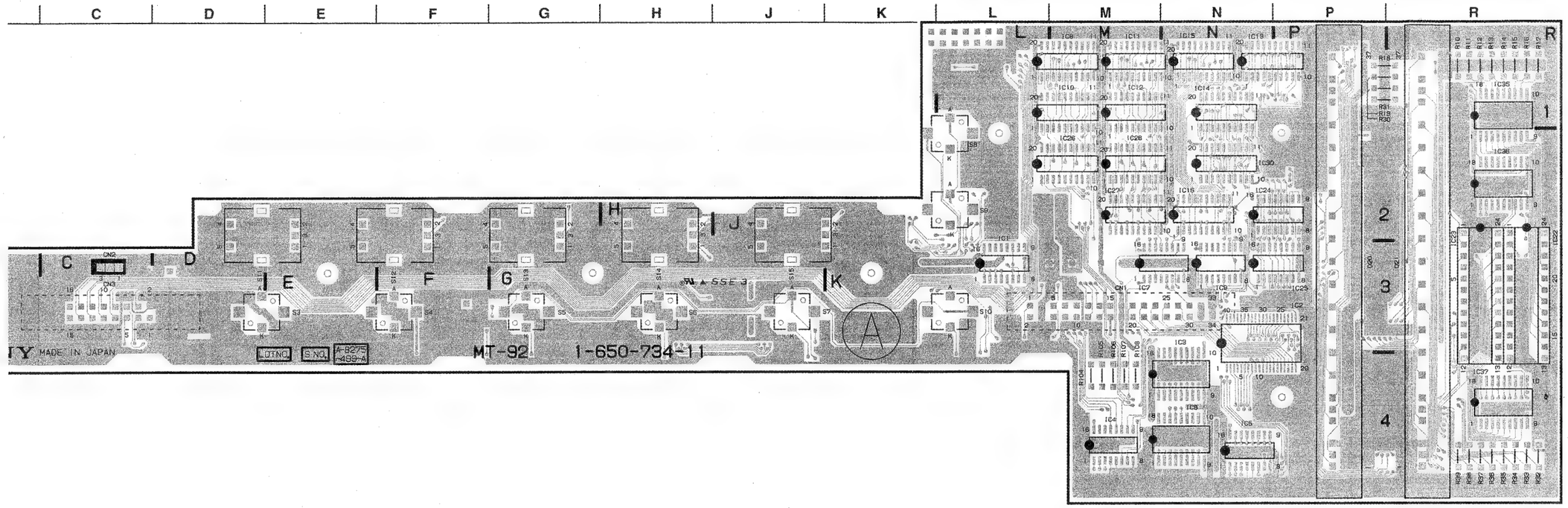
CNI22	R-2	S1	A-3
CNI23	R-2	S2	B-3
		S3	E-3
*CN1	N-3	S4	F-3
*CN2	C-3	S5	G-3
*CN3	D-3	S6	H-3
		S7	K-3
*D1	A-3	S8	L-2
*D2	E-3	S9	L-2
*D3	G-3	S10	L-3
*D4	K-3	S11	D-3
*D5	L-2	S12	F-3
*D6	L-2	S13	G-3
*D10	E-2	S14	H-3
*D11	E-2	S15	J-3
*D12	G-2		
*D13	J-3		
*D14	K-2		
*D15	K-2		
*D16	F-2		
*D17	G-2		
*D18	J-3		
D20	P-3		
D21	R-3		
IC1	L-3		
IC2	P-3		
IC3	N-3		
IC4	M-4		
IC5	N-4		
IC6	N-4		
IC7	M-3		
IC8	M-1		
IC9	N-3		
IC10	M-1		
IC11	M-1		
IC12	M-1		
IC13	N-1		
IC14	N-1		
IC15	N-1		
IC16	N-2		
*IC17	N-1		
*IC18	N-1		
IC22	R-2		
IC23	R-2		
IC24	N-2		
IC25	P-3		
IC26	M-2		
IC27	M-2		
IC28	M-2		
*IC29	N-2		
IC30	N-2		
*IC32	P-4		
*IC33	P-3		
*IC34	P-3		
IC35	R-1		
IC36	R-2		
IC37	R-4		
*IC38	L-1		
*IC39	H-3		

* : SOLDERING SIDE

MT-92 BOARD

A SIDE



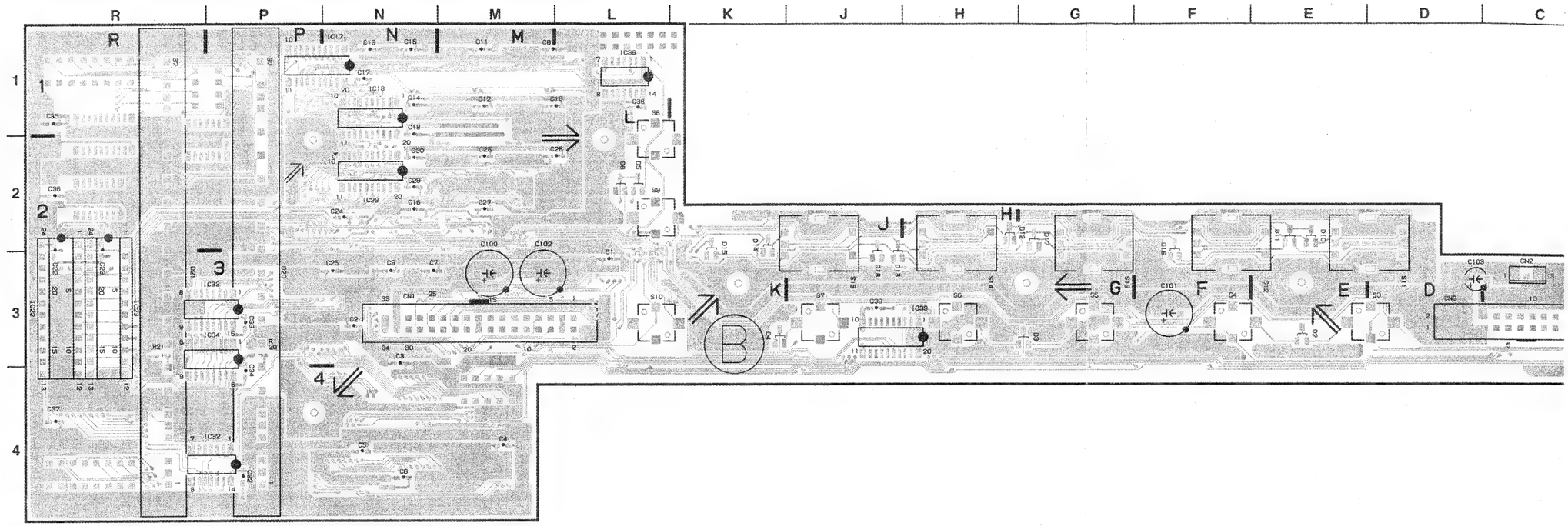


1-650-734-11 A SIDE

A Side is the same as Component Side.

MT-92 BOARD

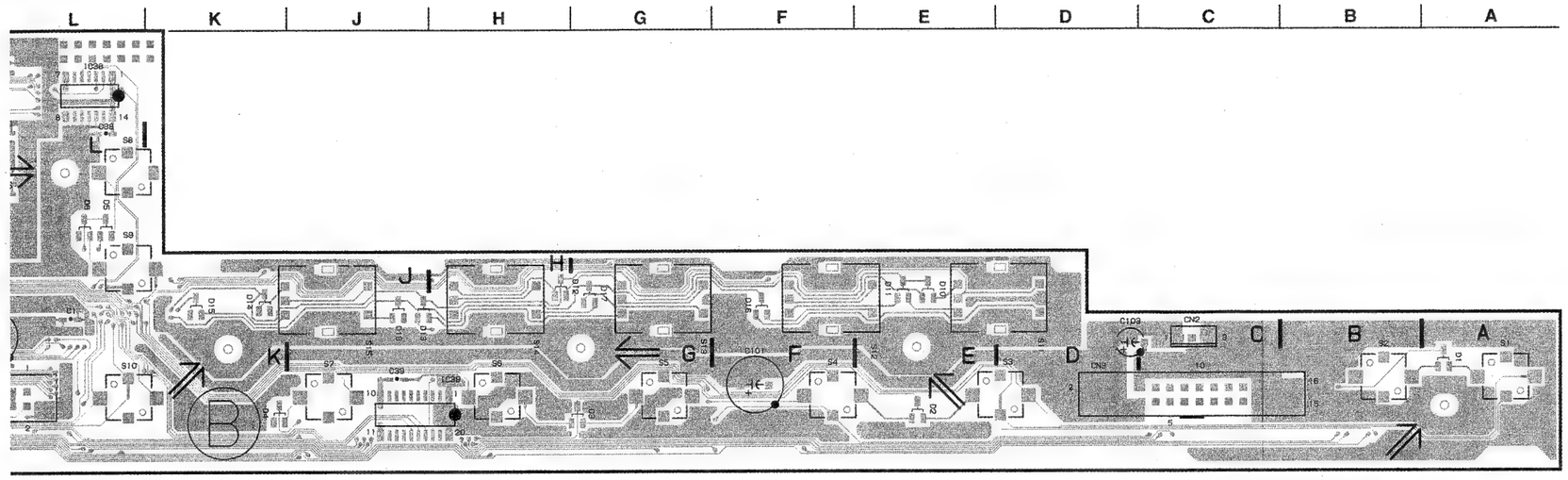
B SIDE



1-650-734-11 B SIDE

B Side is the same as Solder Side.

MT-92



DMX-E2000

MT-92 (1-650-734-11)

CNI22	R-2	S1	A-3
CNI23	R-2	S2	B-3
		S3	E-3
*CN1	N-3	S4	F-3
*CN2	C-3	S5	G-3
*CN3	D-3	S6	H-3
		S7	K-3
*D1	A-3	S8	L-2
*D2	E-3	S9	L-2
*D3	G-3	S10	L-3
*D4	K-3	S11	D-3
*D5	L-2	S12	F-3
*D6	L-2	S13	G-3
*D10	E-2	S14	H-3
*D11	E-2	S15	J-3
*D12	G-2		
*D13	J-3		
*D14	K-2		
*D15	K-2		
*D16	F-2		
*D17	G-2		
*D18	J-3		
D20	P-3		
D21	R-3		
IC1	L-3		
IC2	P-3		
IC3	N-3		
IC4	M-4		
IC5	N-4		
IC6	N-4		
IC7	M-3		
IC8	M-1		
IC9	N-3		
IC10	M-1		
IC11	M-1		
IC12	M-1		
IC13	N-1		
IC14	N-1		
IC15	N-1		
IC16	N-2		
*IC17	N-1		
*IC18	N-1		
IC22	R-2		
IC23	R-2		
IC24	N-2		
IC25	P-3		
IC26	M-2		
IC27	M-2		
IC28	M-2		
*IC29	N-2		
IC30	N-2		
*IC32	P-4		
*IC33	P-3		
*IC34	P-3		
IC35	R-1		
IC36	R-2		
IC37	R-4		
*IC38	L-1		
*IC39	H-3		

* : SOLDERING SIDE

3 - 7

DMX-E2000

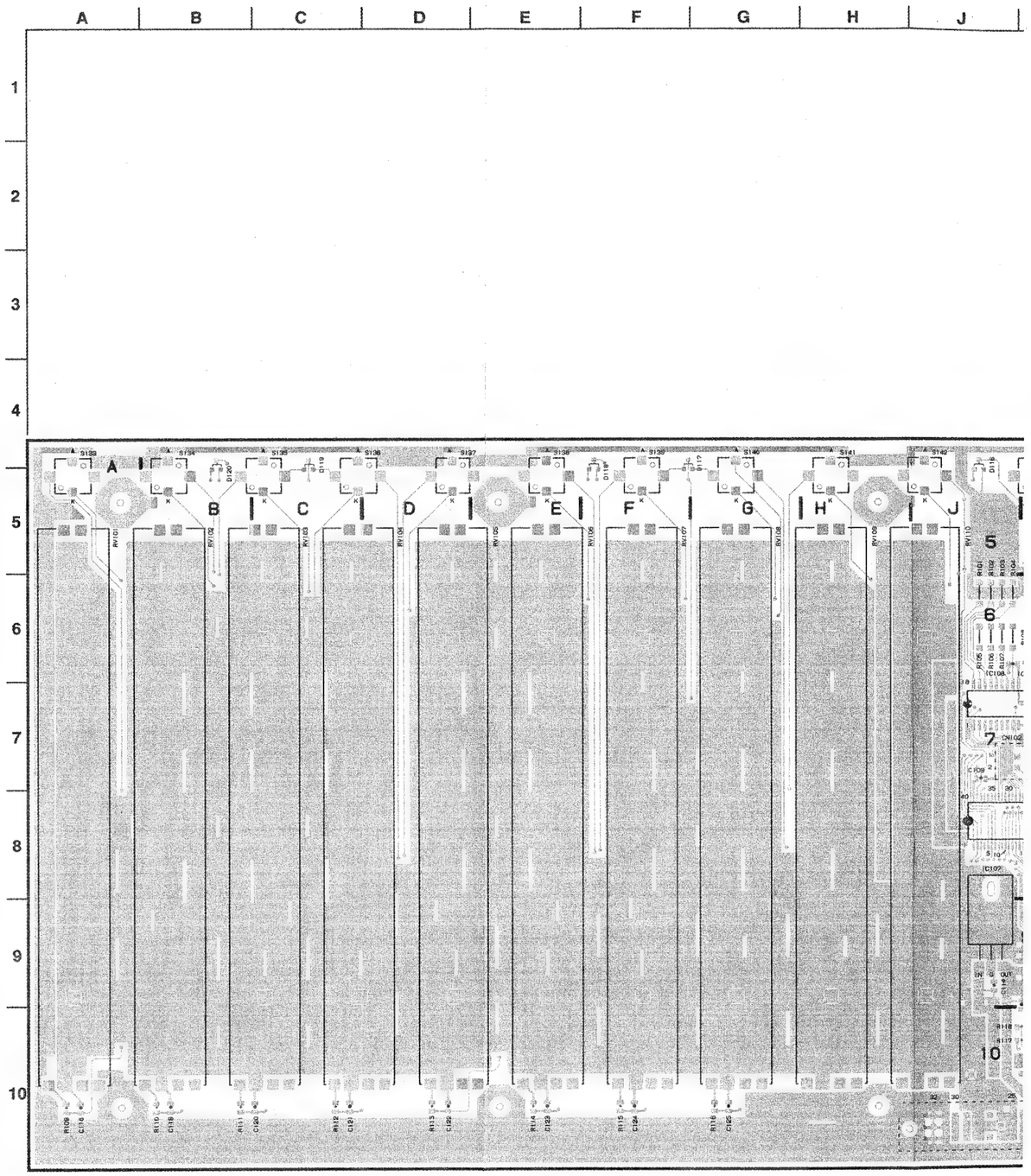
SW-644 (1-650-736-11)

*CN101	K-10	S101	P-1
*CN102	K-7	S102	P-1
*CN103	P-10	S103	R-1
		S104	M-1
D101	P-1	S105	N-1
D102	R-1	S106	M-2
D103	M-2	S107	N-2
D104	M-2	S108	N-2
D105	M-3	S109	P-2
D106	N-2	S110	P-2
D107	N-3	S111	R-2
D108	R-2	S112	S-2
D109	R-3	S113	S-2
D110	S-2	S114	M-3
D111	S-3	S115	N-3
D112	P-4	S116	N-3
D113	R-4	S117	P-3
D114	R-5	S118	P-3
D115	L-5	S119	R-3
D116	J-4	S120	S-3
D117	G-5	S121	S-3
D118	F-5	S122	P-4
D119	C-5	S123	P-4
D120	B-5	S124	R-4
D121	K-5	S125	S-4
D122	R-6	S126	S-4
		S127	R-5
IC101	K-8	S128	S-5
IC102	L-8	S129	K-4
IC103	K-10	S130	L-6
IC104	K-9	S131	L-5
IC105	K-7	S132	L-6
IC106	K-8	S133	A-5
IC107	J-8	S134	B-5
IC108	J-6	S135	C-5
IC109	K-5	S136	D-5
IC110	K-6	S137	D-5
IC111	K-5	S138	E-5
		S139	F-5
RV101	A-5	S140	G-5
RV102	B-5	S141	H-4
RV103	C-5	S142	J-4
RV104	D-5	S143	R-6
RV105	E-5	S144	S-6
RV106	F-5		
RV107	F-5		
RV108	G-5		
RV109	H-5		
RV110	J-5		
RV111	M-5		
RV112	N-5		
RV113	R-5		

* : SOLDERING SIDE

SW-644 BOARD

A SIDE

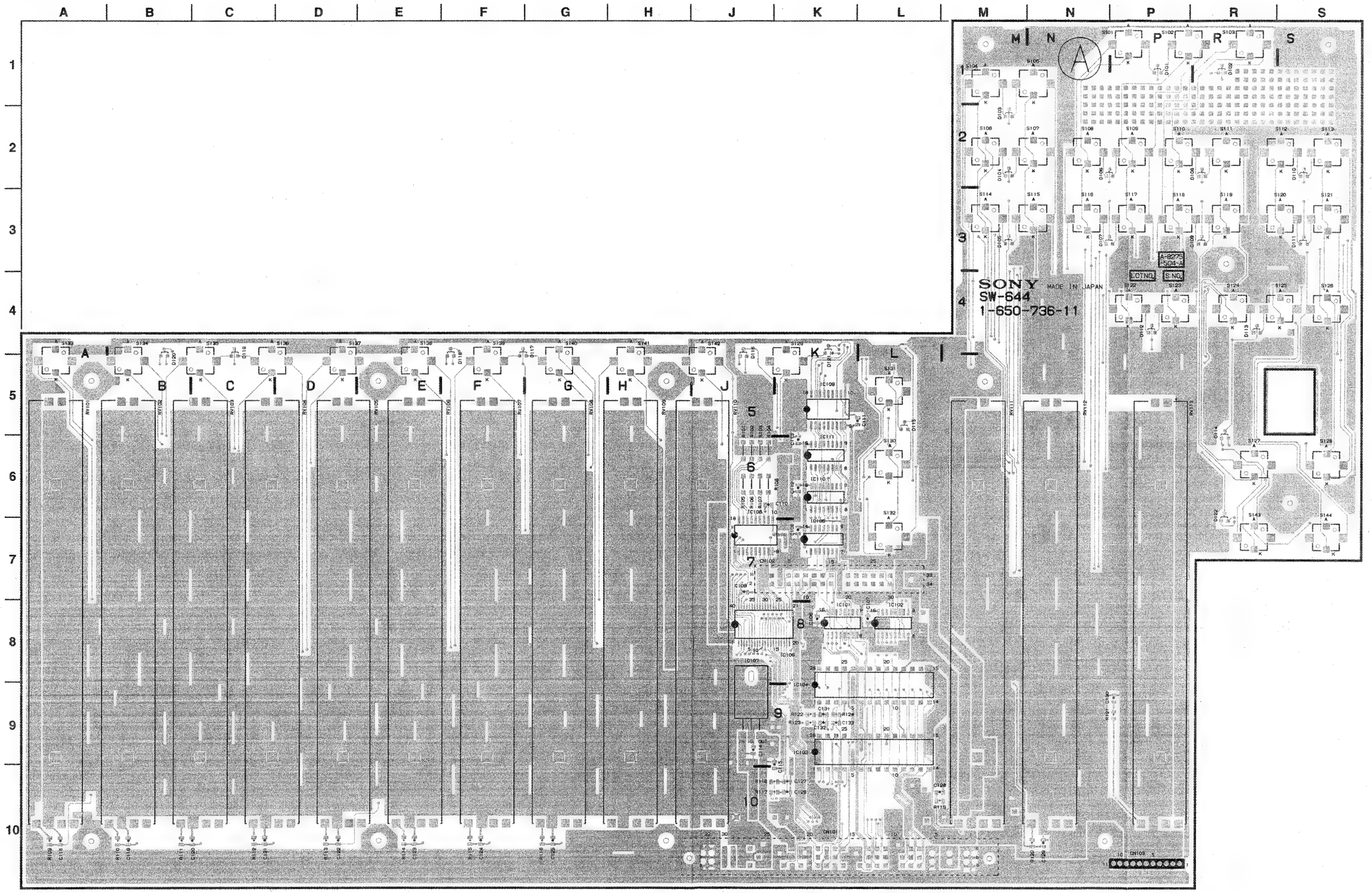


1-650-736-11 A SIDE

A Side is the same as Component Side.

SW-644 BOARD

A SIDE

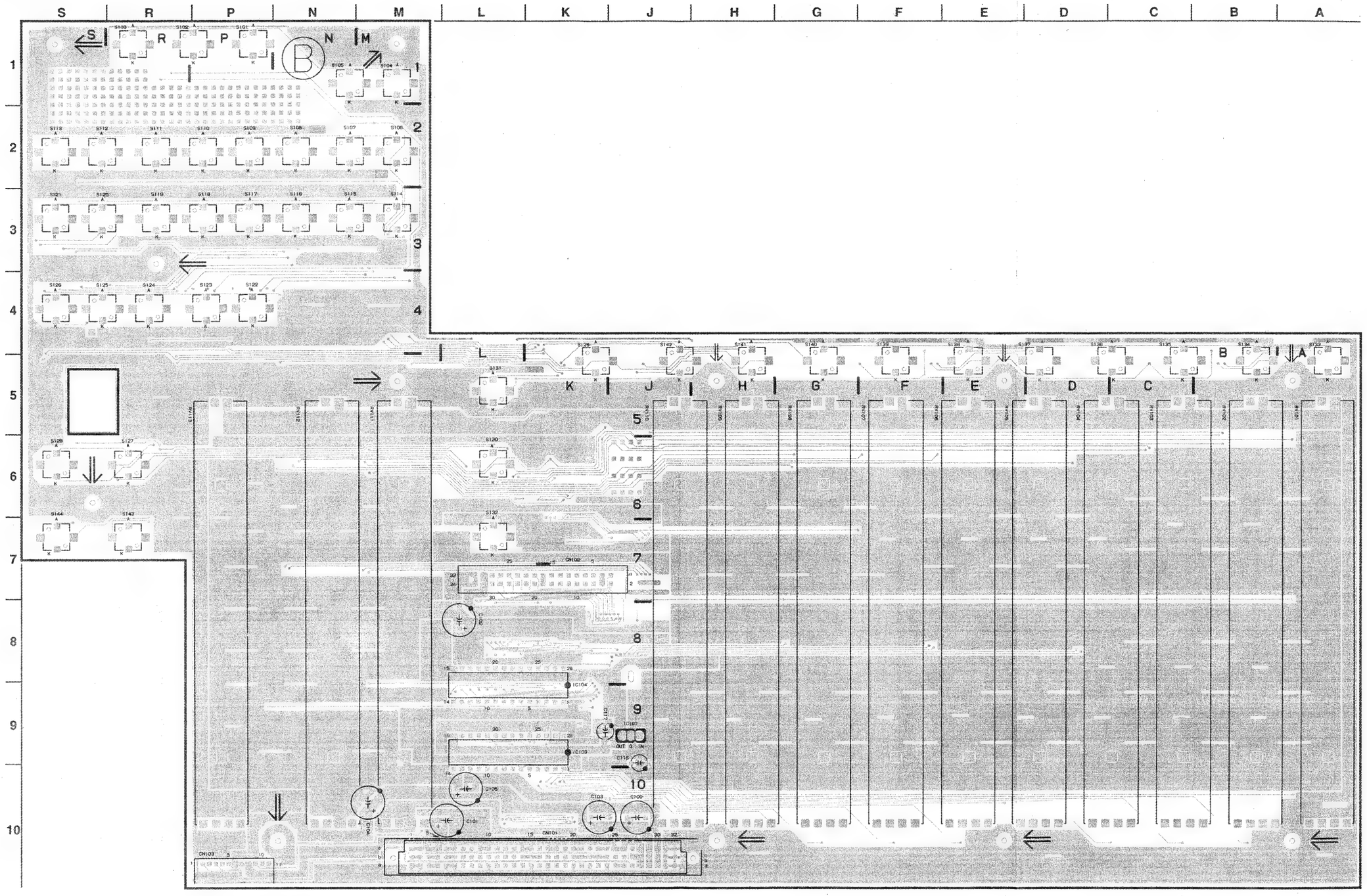


1-650-736-11 A SIDE

A Side is the same as Component Side.

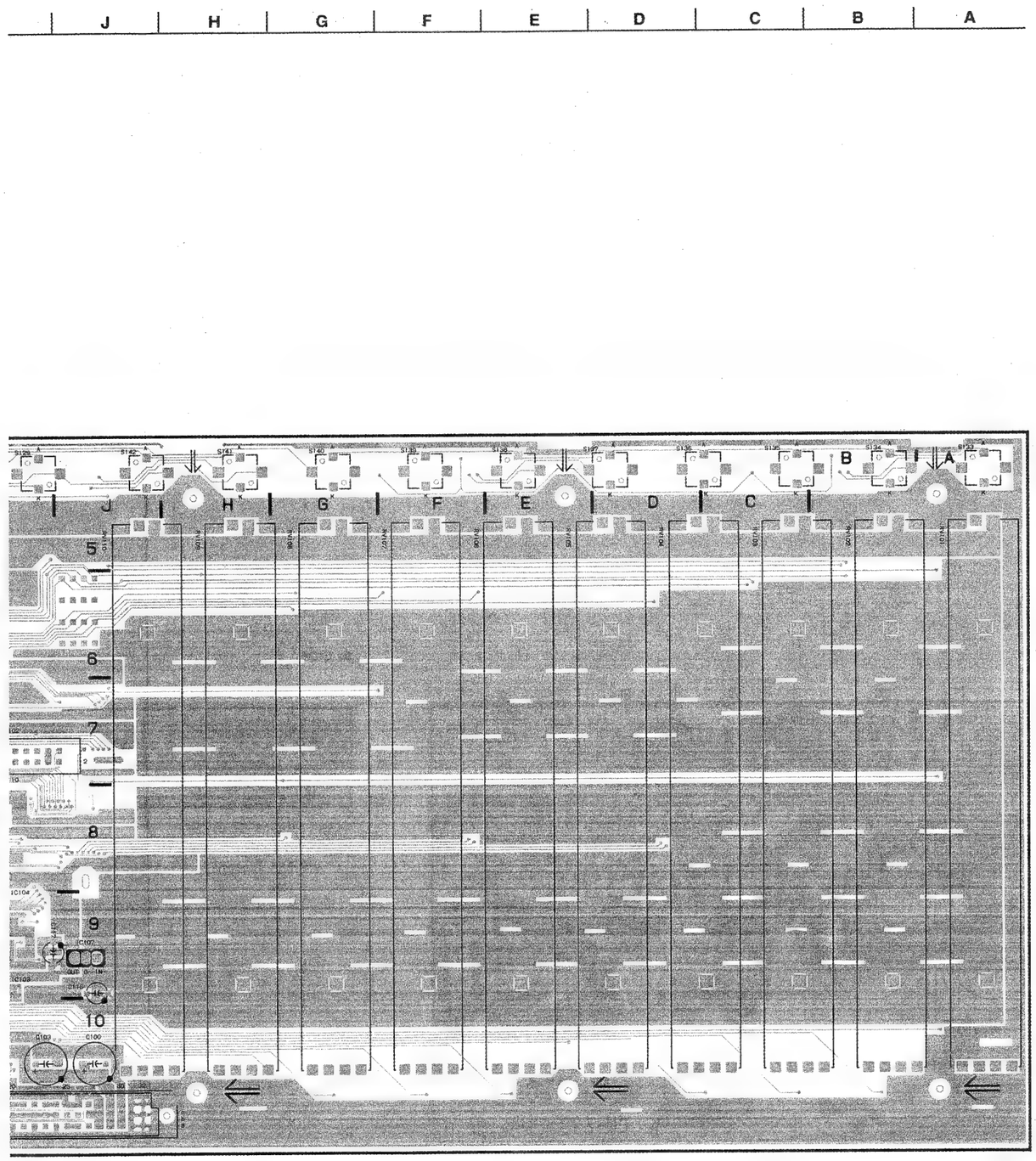
SW-644 BOARD

B SIDE



1-650-736-11 B SIDE

B Side is the same as Solder Side.



DMX-E2000

SW-644 (1-650-736-11)

*CN101	K-10	S101	P-1
*CN102	K-7	S102	P-1
*CN103	P-10	S103	R-1
		S104	M-1
D101	P-1	S105	N-1
D102	R-1	S106	M-2
D103	M-2	S107	N-2
D104	M-2	S108	N-2
D105	M-3	S109	P-2
D106	N-2	S110	P-2
D107	N-3	S111	R-2
D108	R-2	S112	S-2
D109	R-3	S113	S-2
D110	S-2	S114	M-3
D111	S-3	S115	N-3
D112	P-4	S116	N-3
D113	R-4	S117	P-3
D114	R-5	S118	P-3
D115	L-5	S119	R-3
D116	J-4	S120	S-3
D117	G-5	S121	S-3
D118	F-5	S122	P-4
D119	C-5	S123	P-4
D120	B-5	S124	R-4
D121	K-5	S125	S-4
D122	R-6	S126	S-4
		S127	R-5
IC101	K-8	S128	S-5
IC102	L-8	S129	K-4
IC103	K-10	S130	L-6
IC104	K-9	S131	L-5
IC105	K-7	S132	L-6
IC106	K-8	S133	A-5
IC107	J-8	S134	B-5
IC108	J-6	S135	C-5
IC109	K-5	S136	D-5
IC110	K-6	S137	D-5
IC111	K-5	S138	E-5
		S139	F-5
RV101	A-5	S140	G-5
RV102	B-5	S141	H-4
RV103	C-5	S142	J-4
RV104	D-5	S143	R-6
RV105	E-5	S144	S-6
RV106	F-5		
RV107	F-5		
RV108	G-5		
RV109	H-5		
RV110	J-5		
RV111	M-5		
RV112	N-5		
RV113	R-5		

* : SOLDERING SIDE

SW-644

DMX-E2000

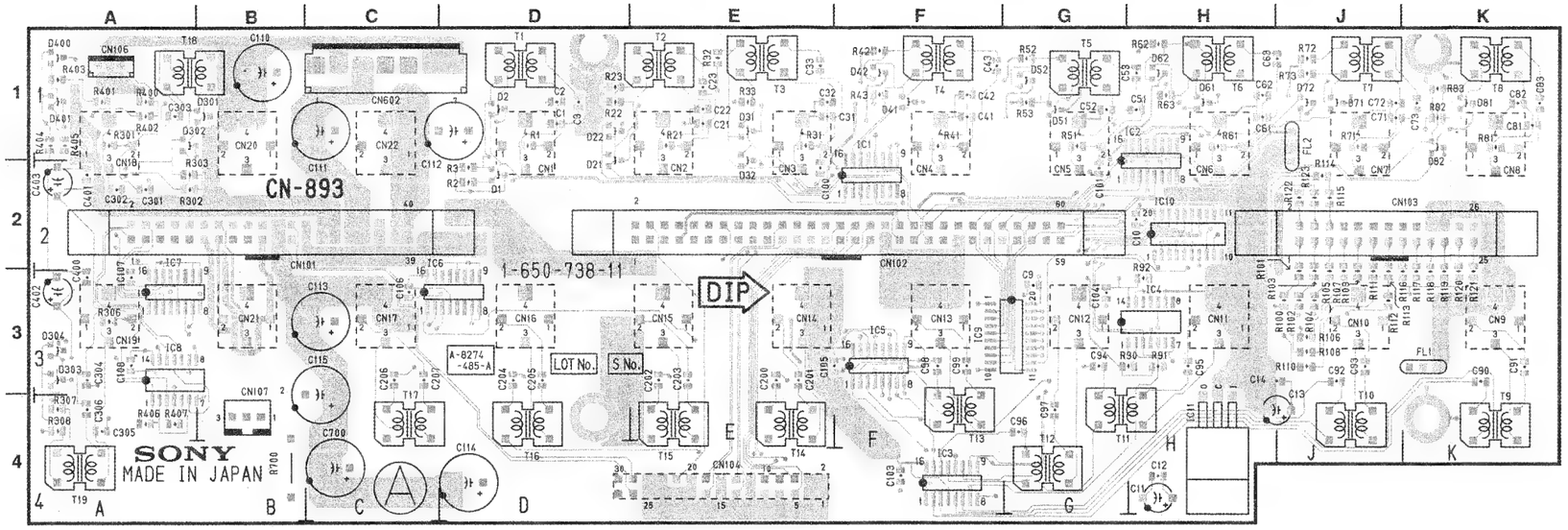
CN-893 (1-650-738-11)

*CN1	D-1	FL1	K-3
*CN2	E-1	FL2	J-1
*CN3	F-1		
*CN4	F-1	IC1	F-1
*CN5	G-1	IC2	G-1
*CN6	H-1	IC3	F-4
*CN7	J-1	IC4	H-3
*CN8	K-1	IC5	F-3
*CN9	K-4	IC6	C-2
*CN10	J-4	IC7	A-2
*CN11	H-4	IC8	A-3
*CN12	G-4	IC9	F-3
*CN13	F-4	IC10	H-2
*CN14	F-4	IC11	H-4
*CN15	E-4		
*CN16	D-4	T1	D-1
*CN17	C-4	T2	E-1
*CN18	A-1	T3	E-1
*CN19	A-4	T4	F-1
*CN20	B-1	T5	G-1
*CN21	B-4	T6	H-1
*CN22	C-2	T7	J-1
CN101	B-2	T8	K-1
CN102	F-2	T9	K-3
CN103	J-2	T10	J-3
*CN104	E-4	T11	G-4
CN106	A-1	T12	G-4
CN107	B-3	T13	F-4
CN602	C-1	T14	E-4
		T15	E-4
D1	D-2	T16	D-4
D2	D-1	T17	C-4
D21	D-1	T18	A-1
D22	D-1	T19	A-4
D31	E-1		
D32	E-2		
D41	F-1		
D42	F-1		
D51	G-1		
D52	G-1		
D61	H-1		
D62	H-1		
D71	J-1		
D72	J-1		
D81	K-1		
D82	K-1		
D301	B-1		
D302	A-1		
D303	A-3		
D304	A-3		
D400	A-1		
D401	A-1		

* : SOLDERING SIDE

CN-893 BOARD

A SIDE

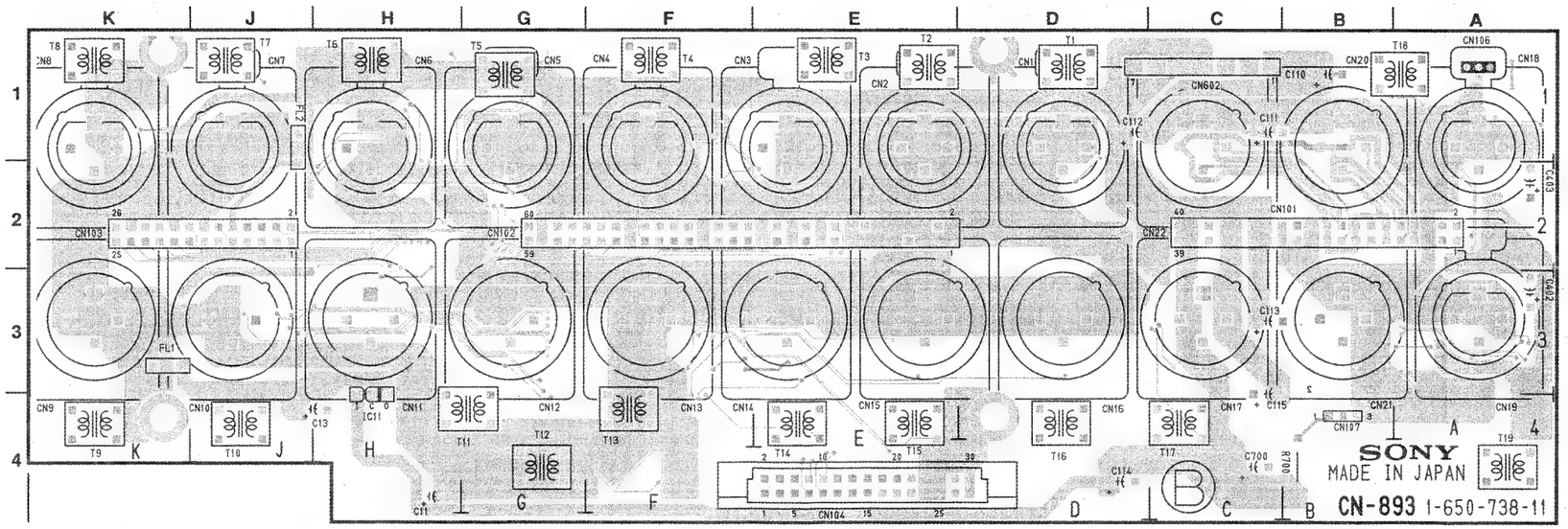


1-650-738-11 A SIDE

A Side is the same as Component Side.

CN-893 BOARD

B SIDE

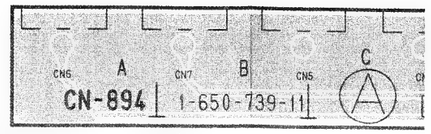


1-650-738-11 B SIDE

B Side is the same as Solder Side.

CN-894 BOARD

A SIDE

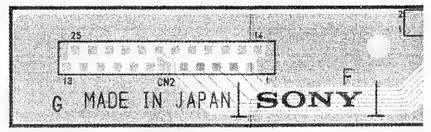


1-650-739-11 A SIDE

A Side is the same as Component Side.

CN-894 BOARD

B SIDE

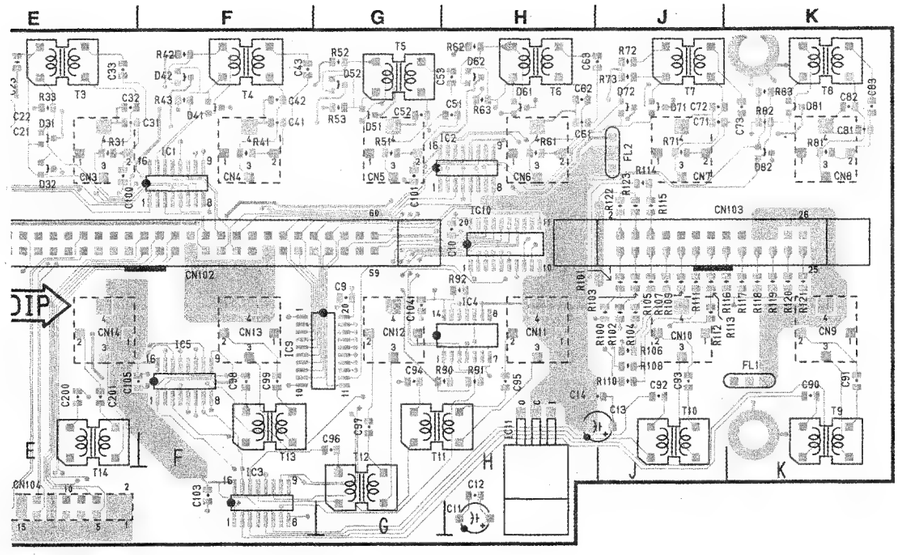


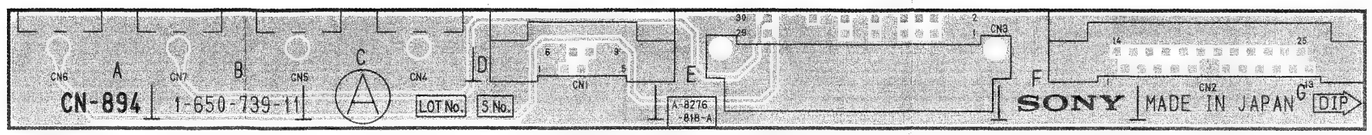
1-650-739-11 B SIDE

B Side is the same as Solder Side.

CN-894 BOARD

A SIDE



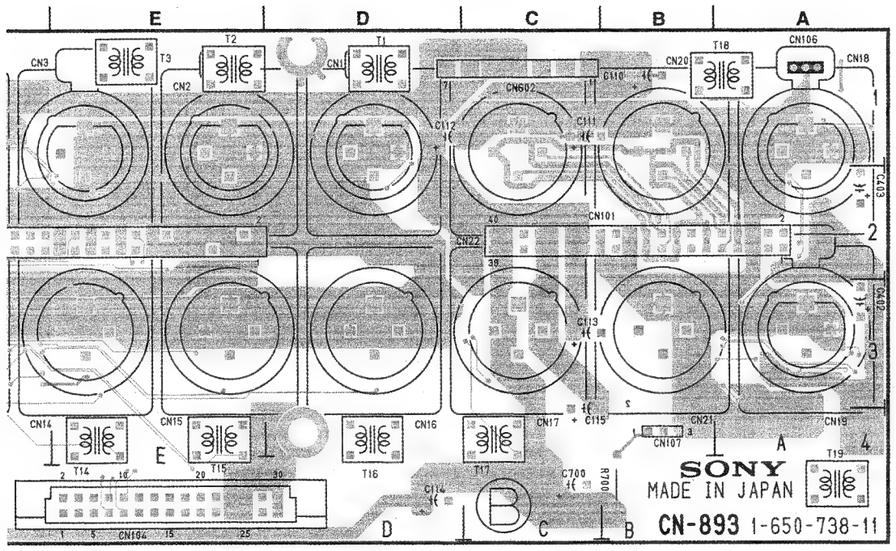


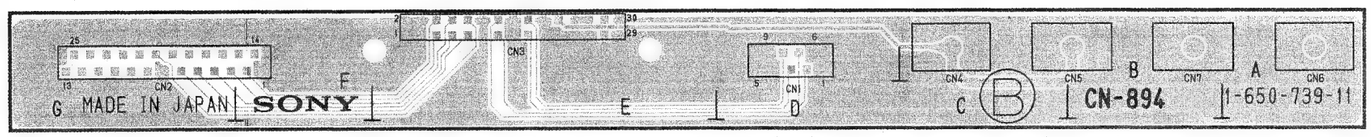
1-650-739-11 A SIDE

A Side is the same as Component Side.

CN-894 BOARD

B SIDE



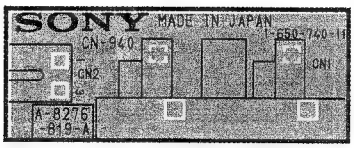


1-650-739-11 B SIDE

B Side is the same as Solder Side.

CN-940 BOARD

A SIDE

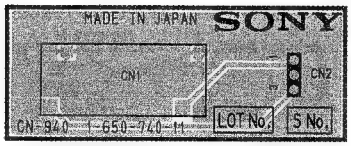


1-650-740-11 A SIDE

A Side is the same as Component Side.

CN-940 BOARD

B SIDE

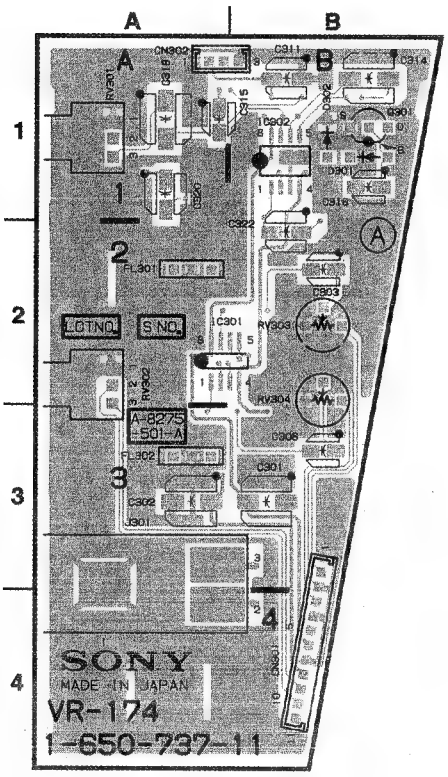


1-650-740-11 B SIDE

B Side is the same as Solder Side.

VR-174 BOARD

A SIDE

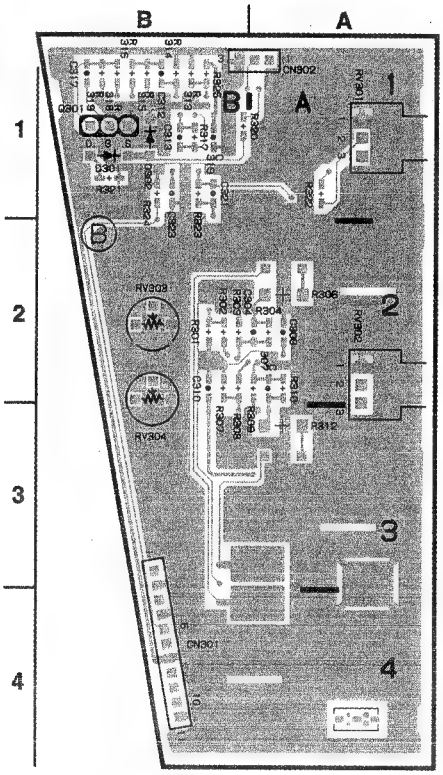


1-650-737-11 A SIDE

A Side is the same as Component Side.

VR-174 BOARD

B SIDE



1-650-737-11 B SIDE

B Side is the same as Solder Side.

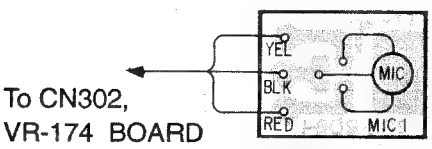
DMX-E2000

VR-174 (1-650-737-11)

CN301	B-4
CN302	A-1
D301	B-1
D302	B-1
FL301	A-2
FL302	A-3
IC301	A-2
IC302	B-1
J301	A-3
Q301	B-1
RV301	A-1
RV302	A-2
RV303	B-2
RV304	B-2

MIC BOARD

COMPONENT SIDE

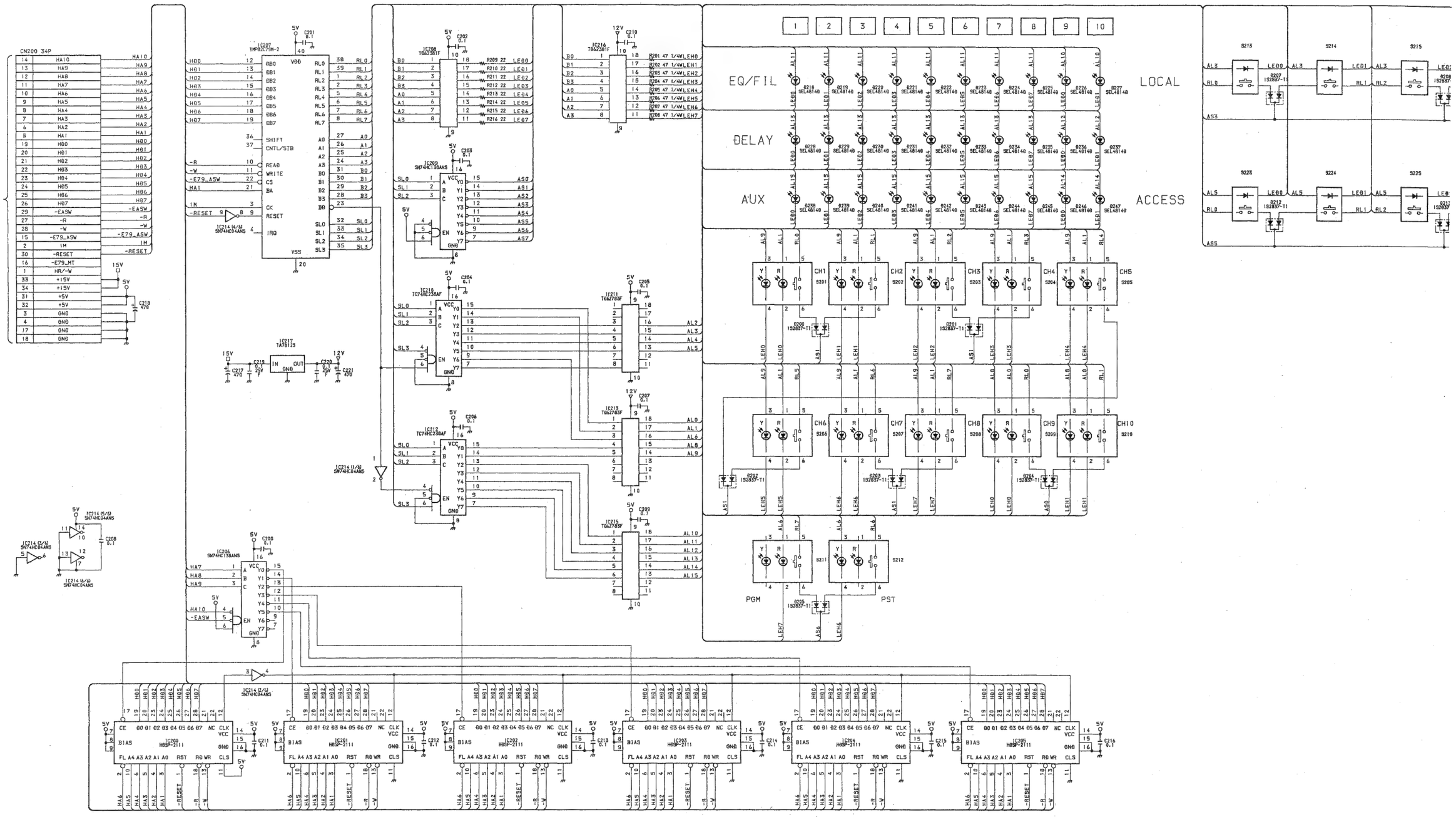


1-609-885-11 COMPONENT SIDE

SECTION 4
SCHEMATIC DIAGRAMS

Board Name	Function	PAGE
ASW-32	ASSIGN SWITCH BOARD	4-2
CN-893	CONNECTOR BOARD	4-19
CN-894	CONNECTOR BOARD	4-20
CN-940	CONNECTOR BOARD	4-20
MIX-17	MIXING BOARD	4-3
MT-92	METER BOARD	4-16
SW-644	SWITCH BOARD	4-18
VR-174, MIC	VOLUME CONTROL BOARD	4-20

ASW-32 BOARD


CN200 34P
TO MT-92, CN1
FROM SW-644, CN102
EQ/FIL
DELAY
AUX
LOCAL
ACCESS
PGM
PST
CH1
CH2
CH3
CH4
CH5
CH6
CH7
CH8
CH9
CH10
IC207 TMP82C79N-2
IC208 T6A2381F
IC209 SN74HC138ANS
IC210 T6A2381F
IC211 T6A2765F
IC212 TC74HC238AF
IC213 T6A2765F
IC214 TA78L12S
IC215 T6A2765F
IC216 T6A2381F
IC217 TA78L05S
IC218 TC74HC238AF
IC219 TC74HC238AF
IC220 SN74HC138ANS
IC221 SN74HC138ANS
IC222 SN74HC04ANS
IC223 SN74HC04ANS
IC224 SN74HC04ANS
IC225 SN74HC04ANS
IC226 SN74HC04ANS
IC227 SN74HC04ANS
IC228 SN74HC04ANS
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IC246 SN74HC04ANS
IC247 SN74HC04ANS
IC201 HD6P-2111
IC202 HD6P-2111
IC203 HD6P-2111
IC204 HD6P-2111
IC205 HD6P-2111
IC206 SN74HC138ANS
IC209 HD6P-2111
S201
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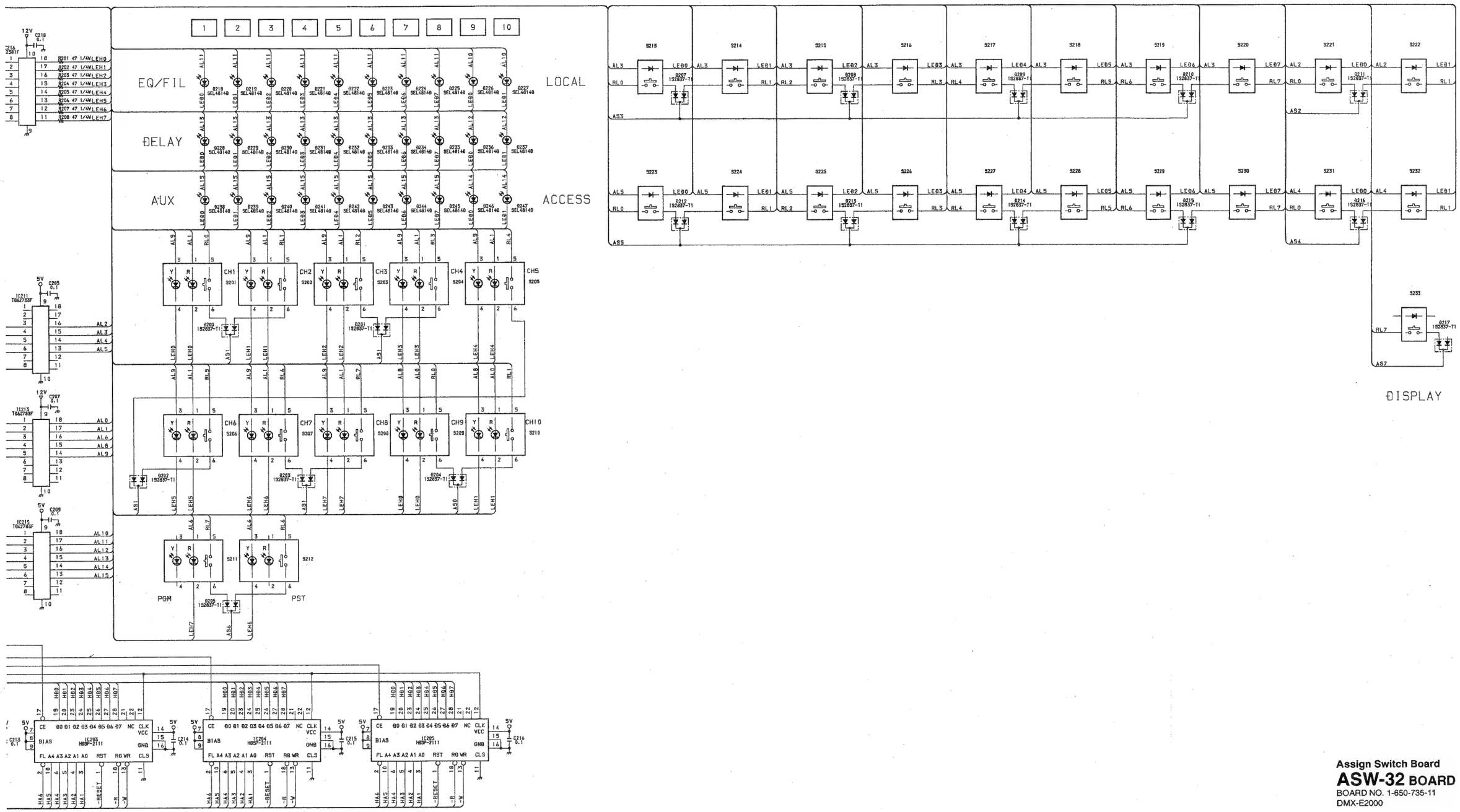
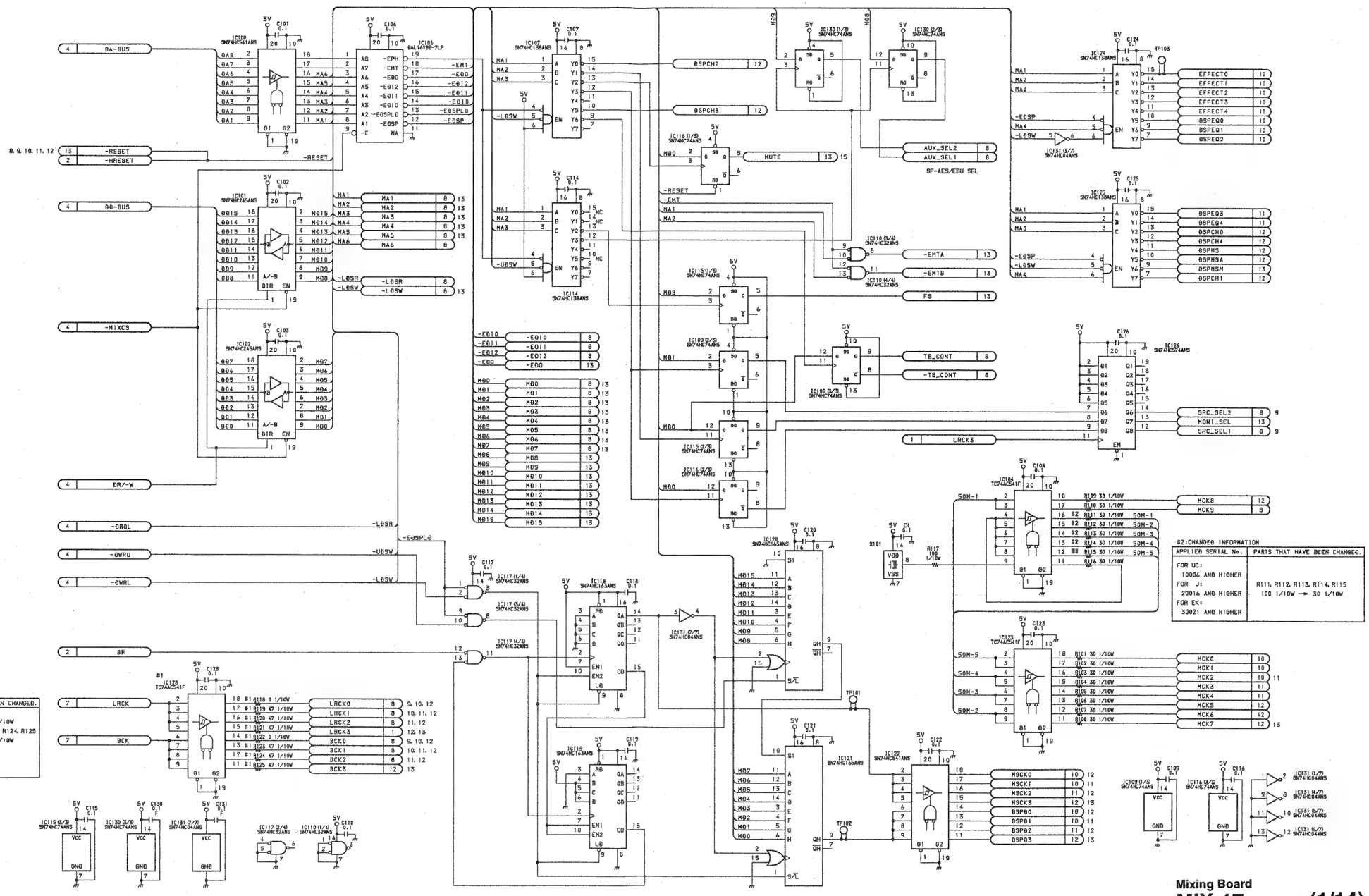
S247
R201 47 1/4W LEH0
R202 47 1/4W LEH1
R203 47 1/4W LEH2
R204 47 1/4W LEH3
R205 47 1/4W LEH4
R206 47 1/4W LEH5
R207 47 1/4W LEH6
R208 47 1/4W LEH7
R209 22 LE00
R210 22 LE01
R211 22 LE02
R212 22 LE03
R213 22 LE04
R214 22 LE05
R215 22 LE06
R216 22 LE07
IS2837-T1



Assign Switch Board
ASW-32 BOARD
BOARD NO. 1-650-735-11
DMX-E2000

E F G H I J K L

MIX-17 BOARD (1/14)



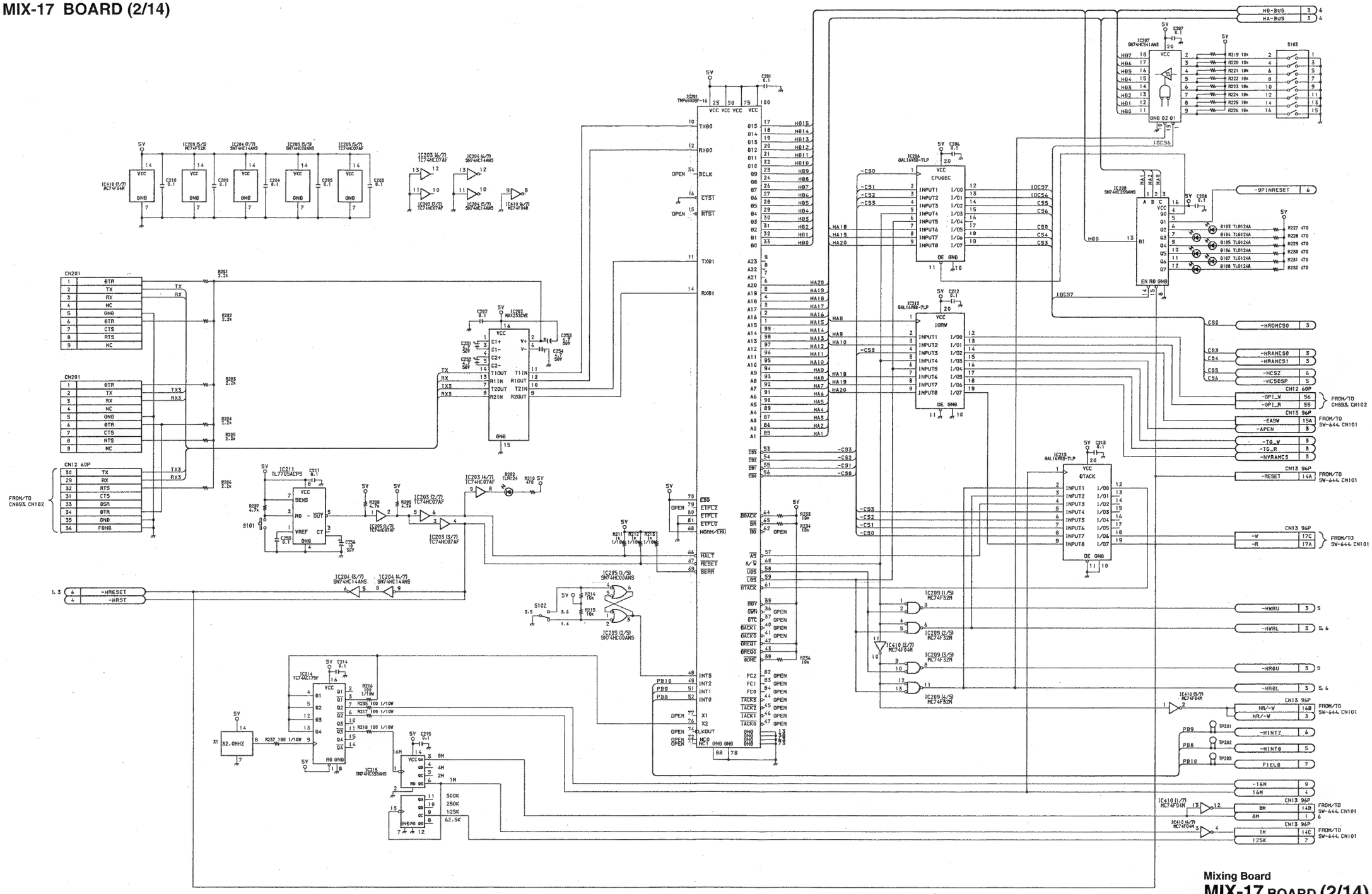
Mixing Board

MIX-17 BOARD (1/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (2/14)



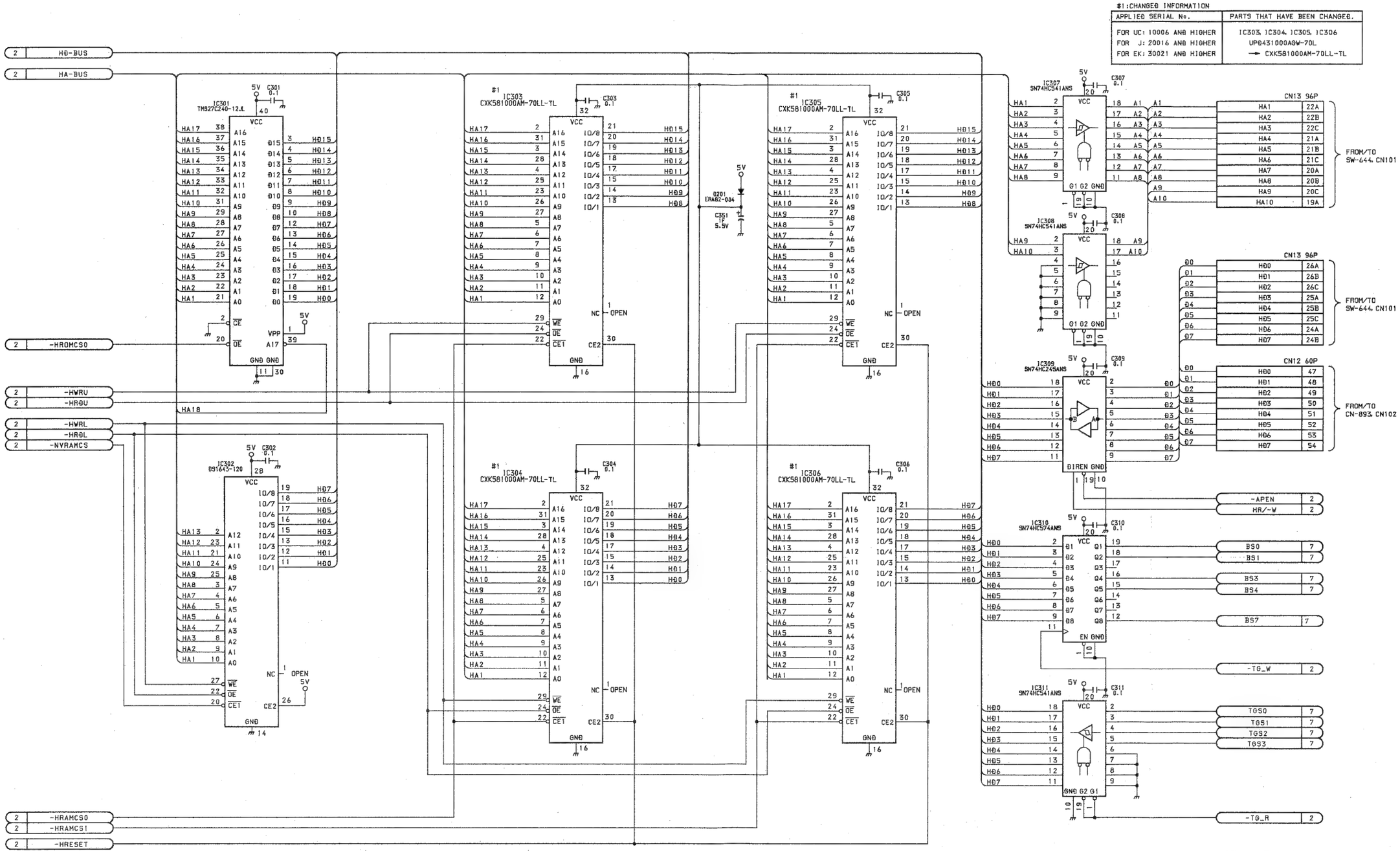
Mixing Board

MIX-17 BOARD (2/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (3/14)



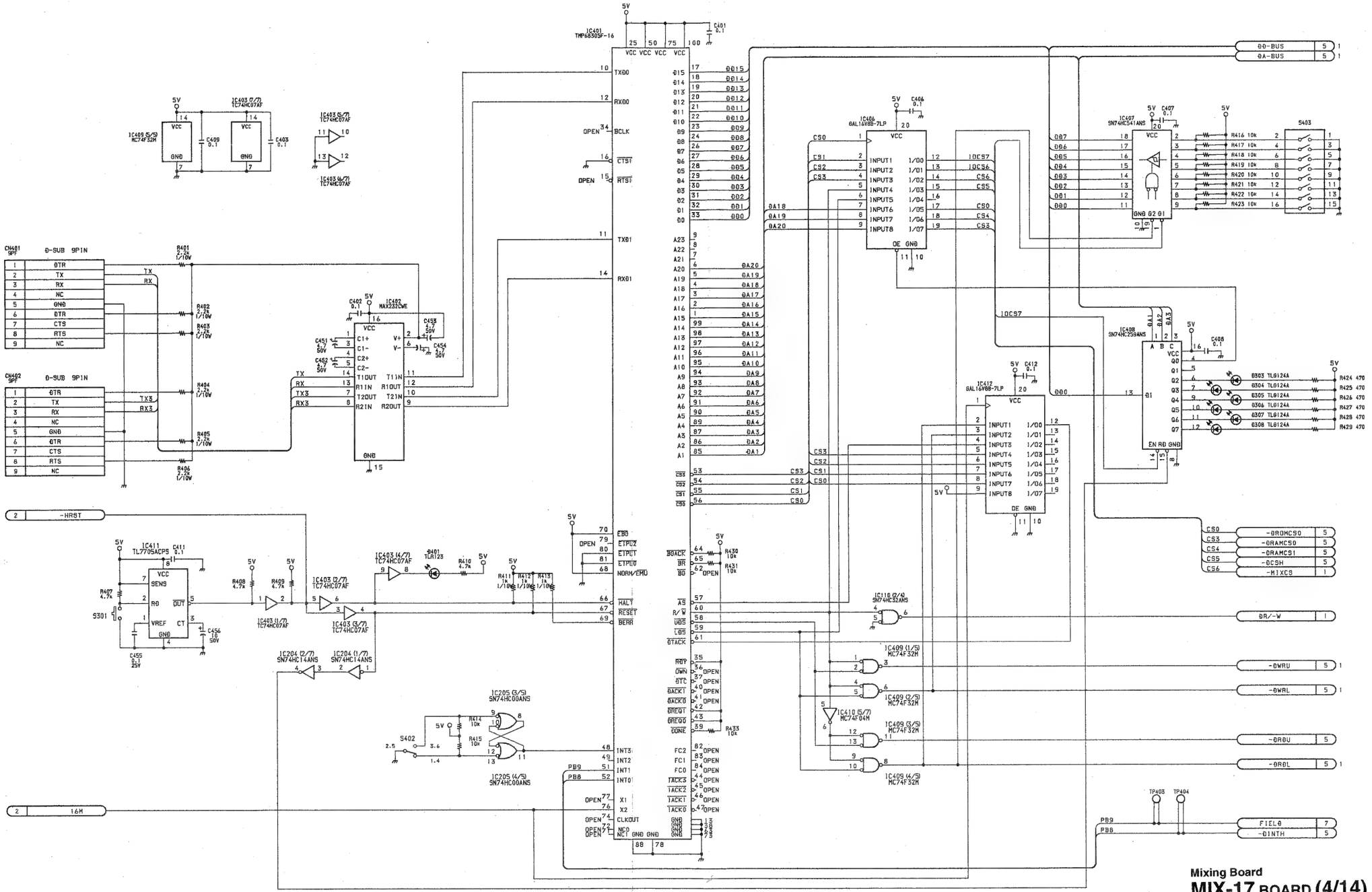
Mixing Board

MIX-17 BOARD (3/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (4/14)



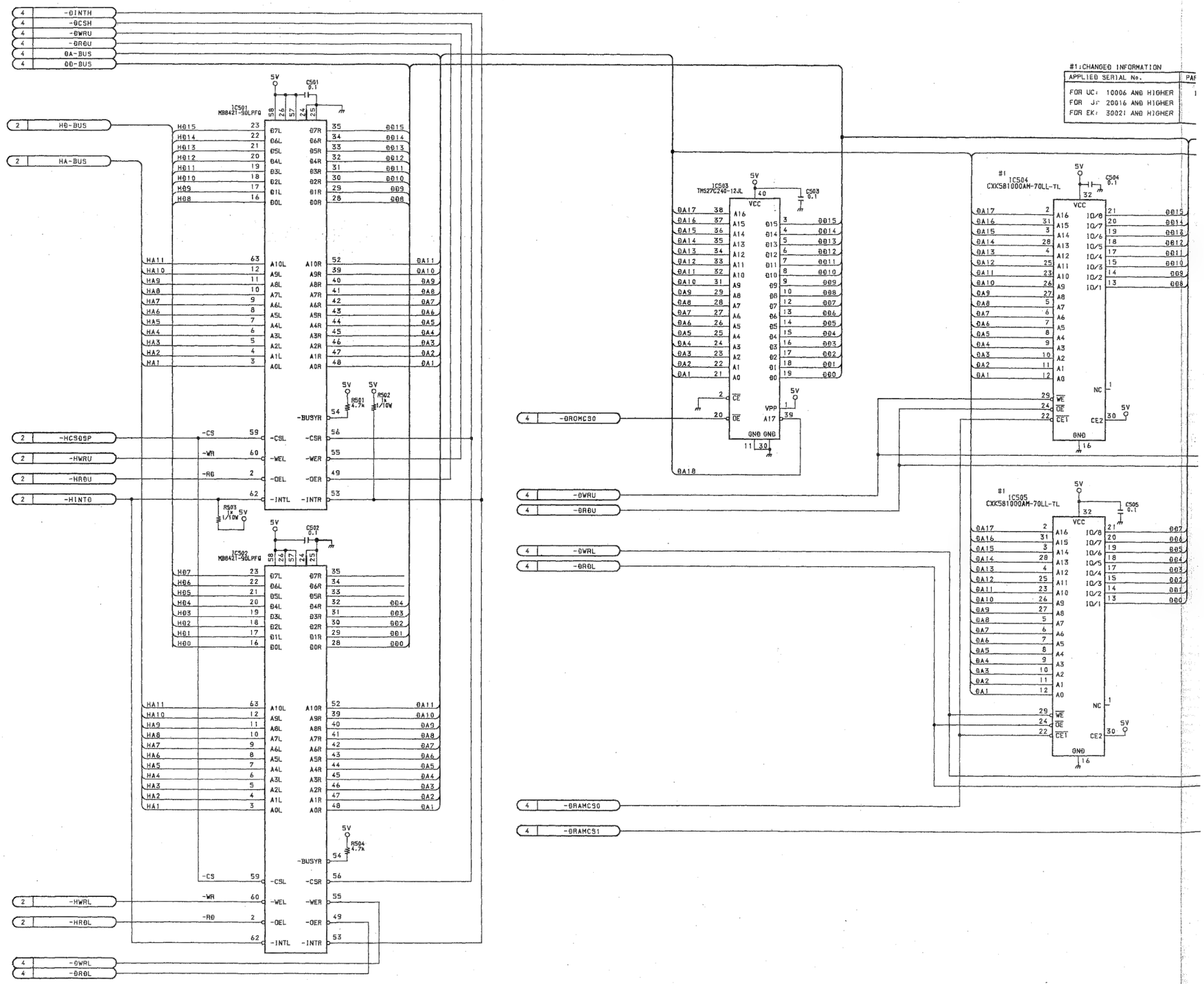
Mixing Board

MIX-17 BOARD (4/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (5/14)

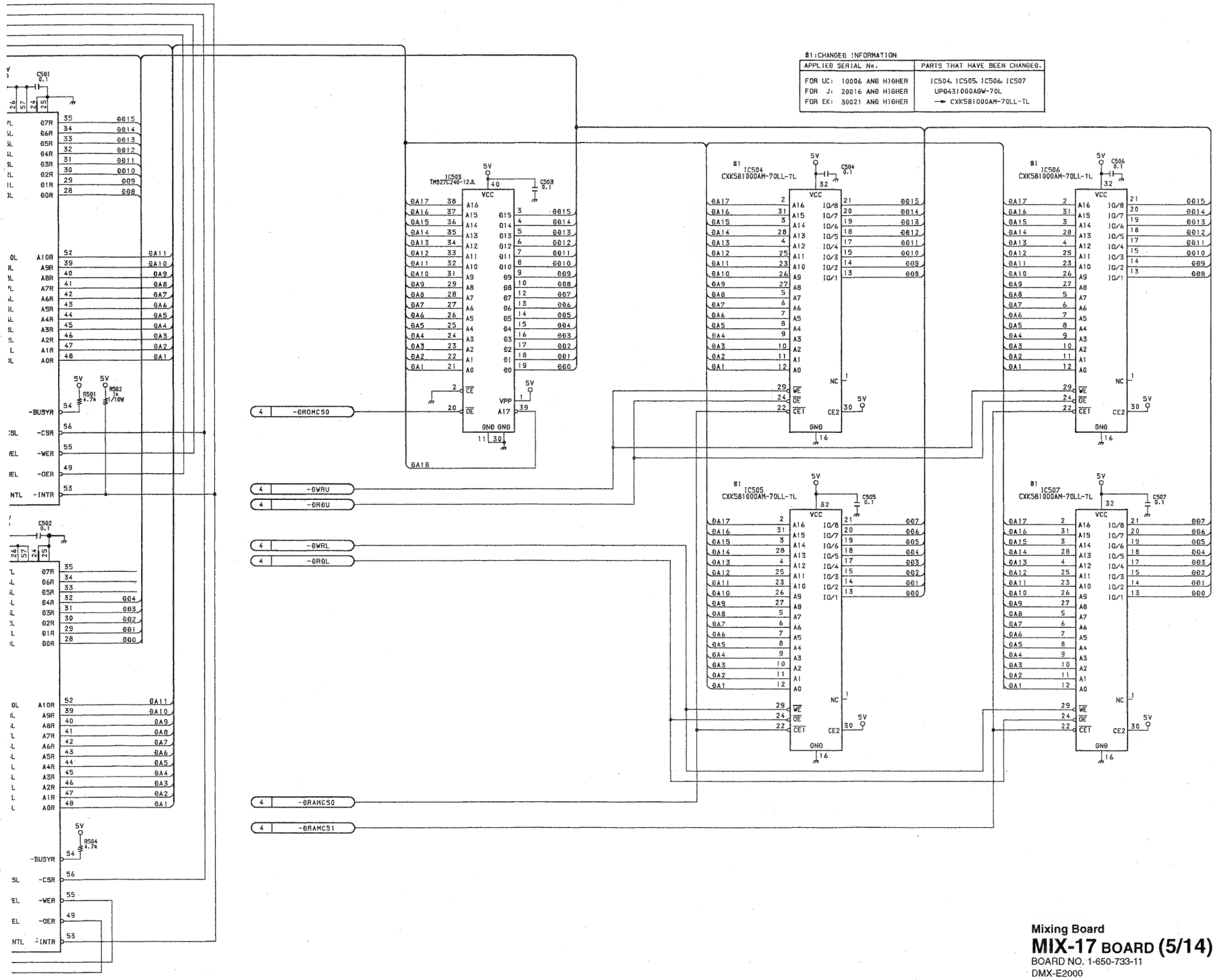


A | B | C | D | E | F | G | H

MIX-17 (5/14)

#1:CHANGED INFORMATION

APPLIED SERIAL No.	PARTS THAT HAVE BEEN CHANGED.
FOR UC: 10006 AND HIGHER	IC504, IC505, IC506, IC507
FOR J: 20016 AND HIGHER	UPD431000AGW-70L
FOR EK: 30021 AND HIGHER	→ CXK581000AM-70LL-TL



Mixing Board

MIX-17 BOARD (5/14)

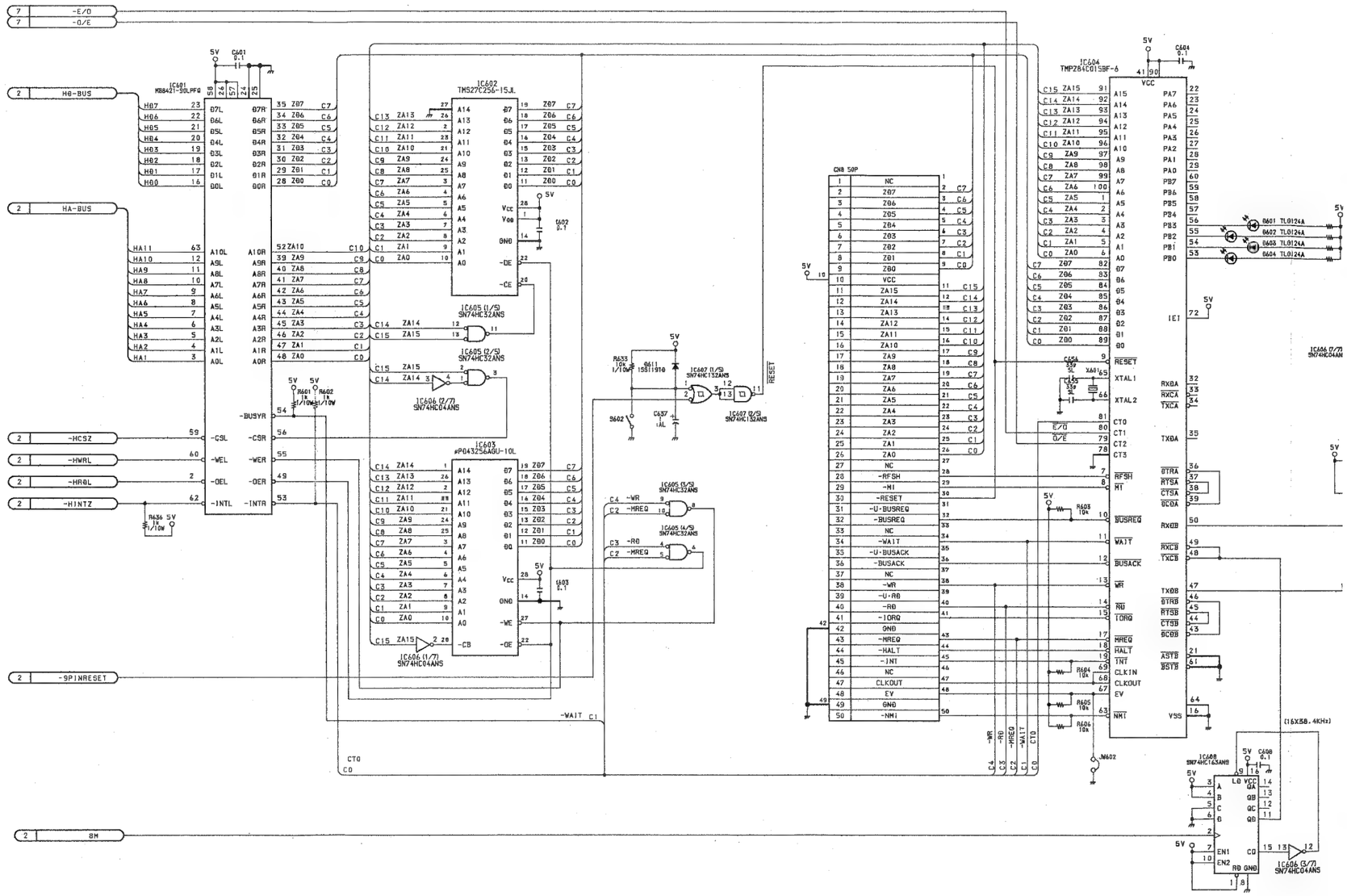
BOARD NO. 1-650-733-11

DMX-E2000

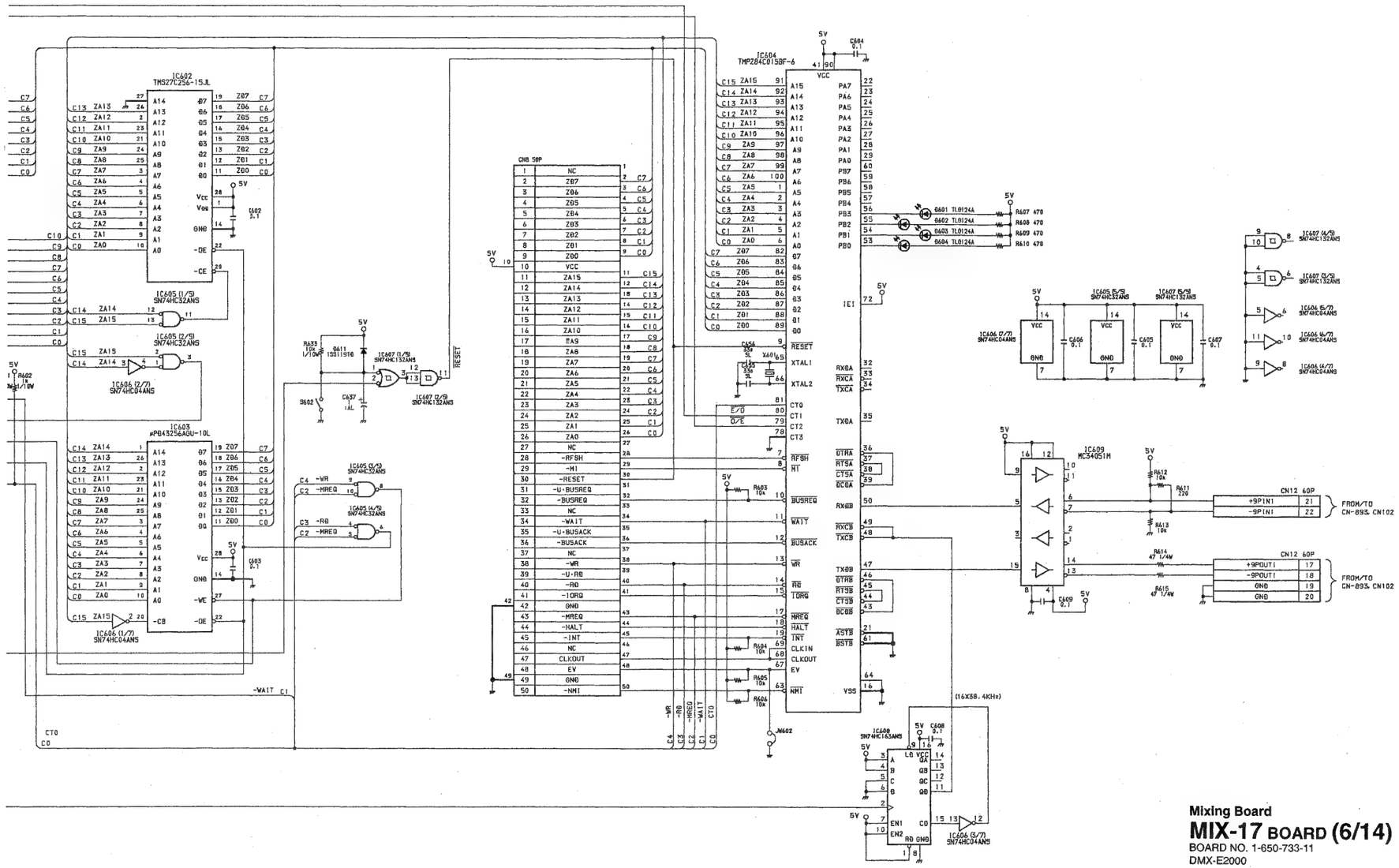
4 - 7

MIX-17 (6/14)

MIX-17 BOARD (6/14)



A | B | C | D | E | F | G | H



Mixing Board

MIX-17 BOARD (6/14)

BOARD NO. 1-650-733-11

DMX-E2000

IIX-17 BOARD (7/14)

#1:CHANGED INFORMATION

APPLIED SERIAL No.	PARTS THAT HAVE BEEN ADDED.
FOR UC: 10006 AND HIGHER FOR J: 20016 AND HIGHER FOR EK: 30021 AND HIGHER	#1000 1SS119

B C D E F G H I

#2:CHANGED INFORMATION

APPLIED SERIAL No.	PARTS THAT HAVE BEEN CHANGED.
FOR UC: 10006 AND HIGHER FOR J: 20016 AND HIGHER FOR EK: 30021 AND HIGHER	R751, R752, R755, R756 100 1/10W → 47 1/10W

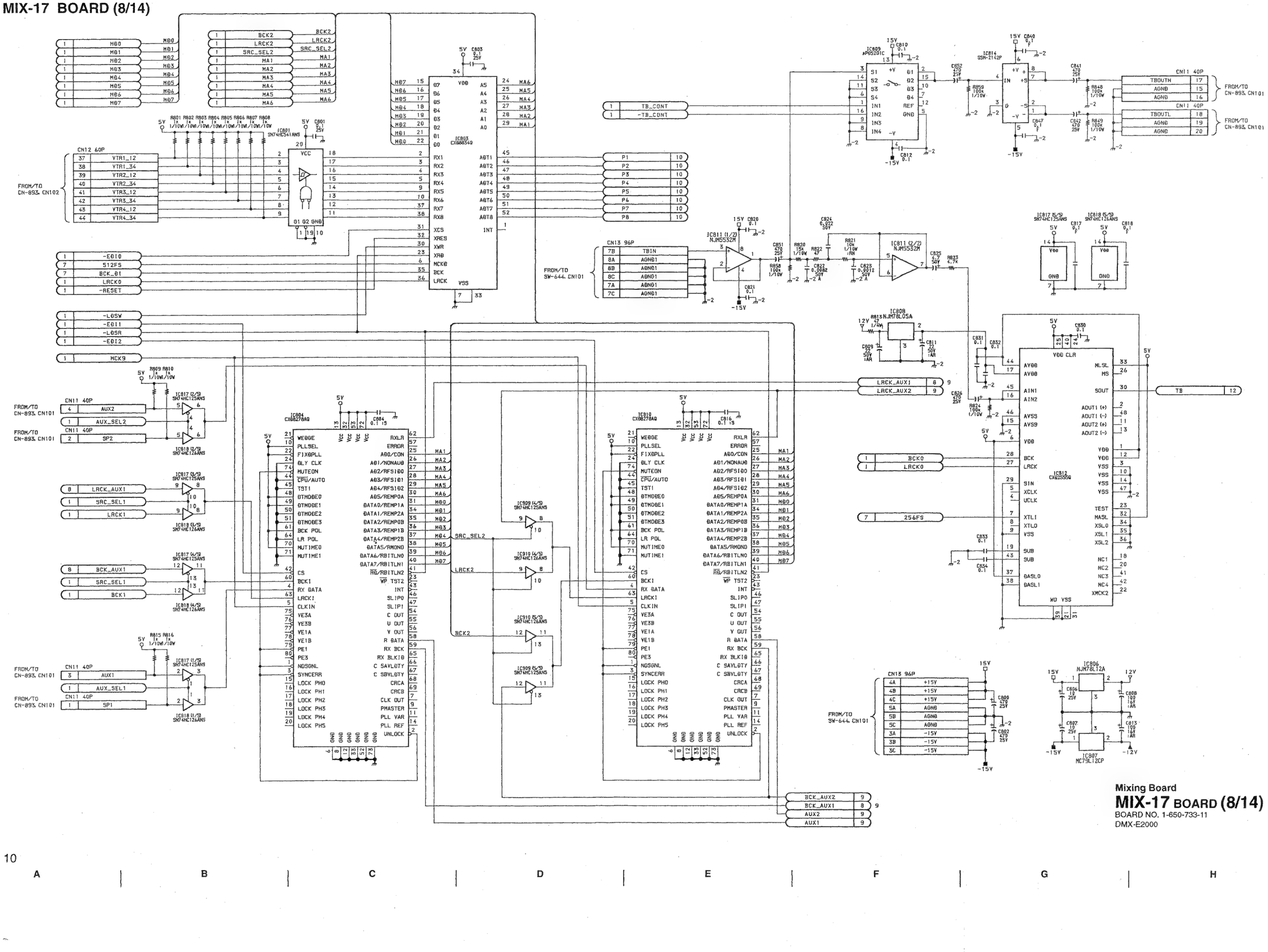
Mixing Board

MIX-17 BOARD (7/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (8/14)



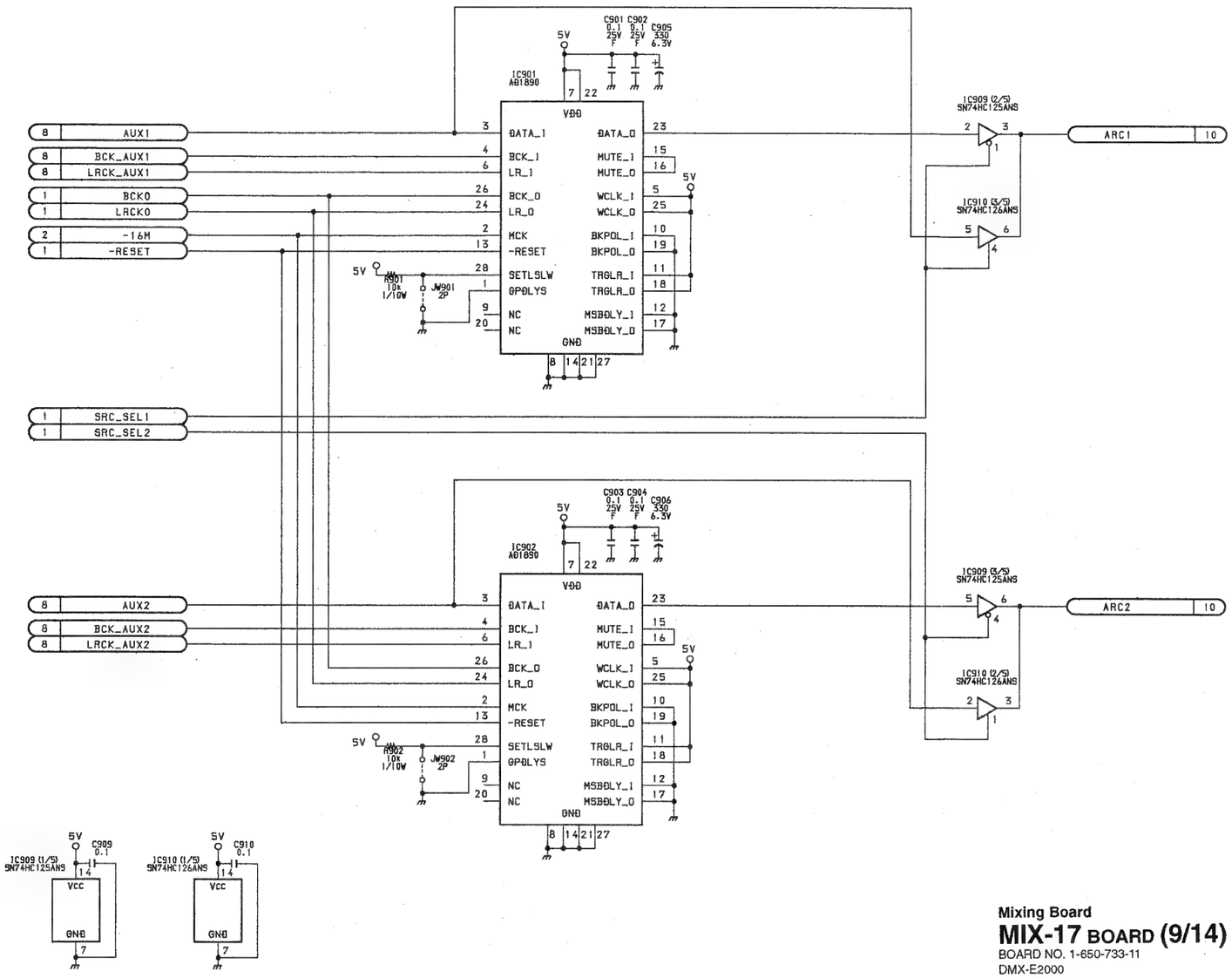
Mixing Board

MIX-17 BOARD (8/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (9/14)



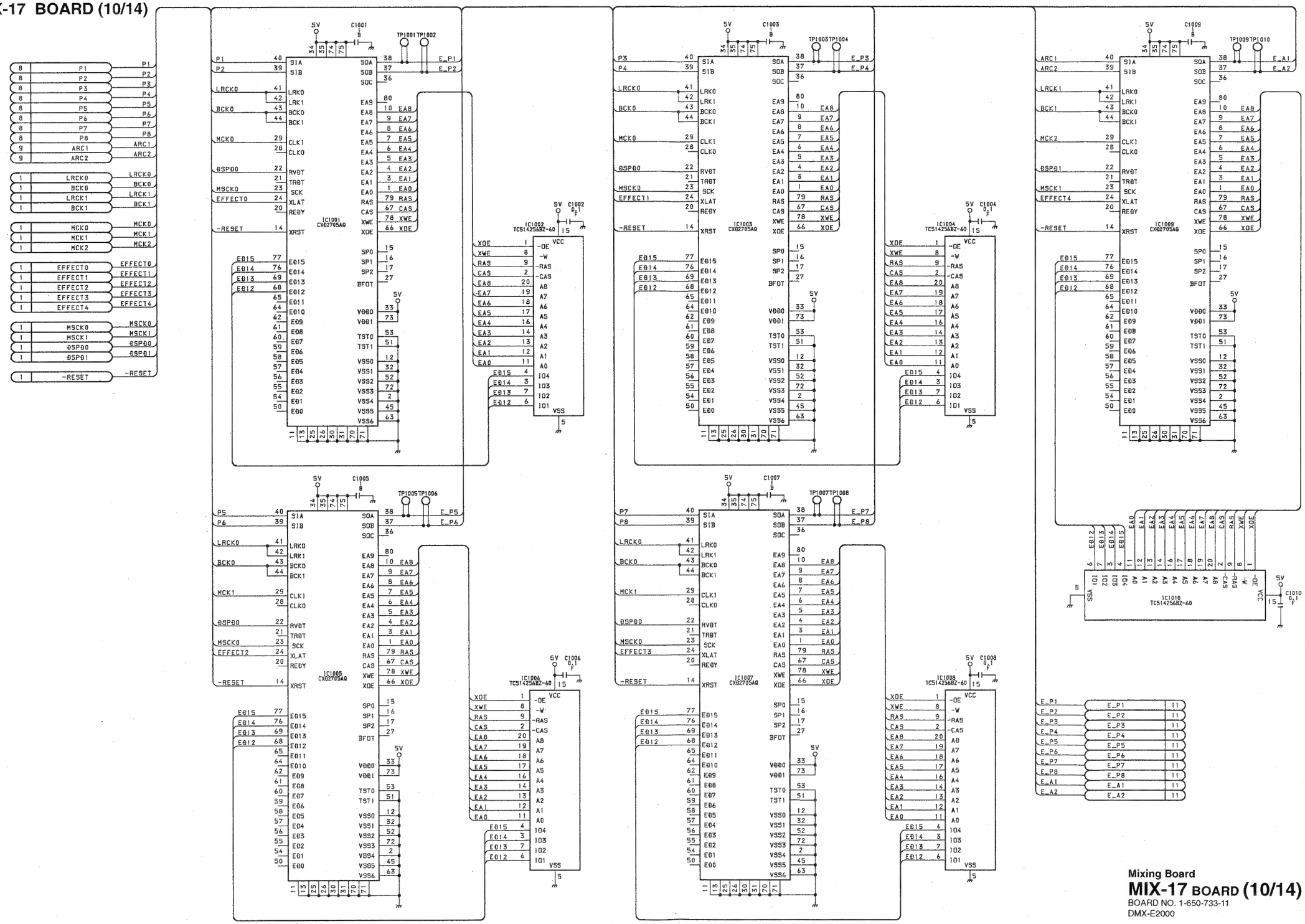
Mixing Board

MIX-17 BOARD (9/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (10/14)



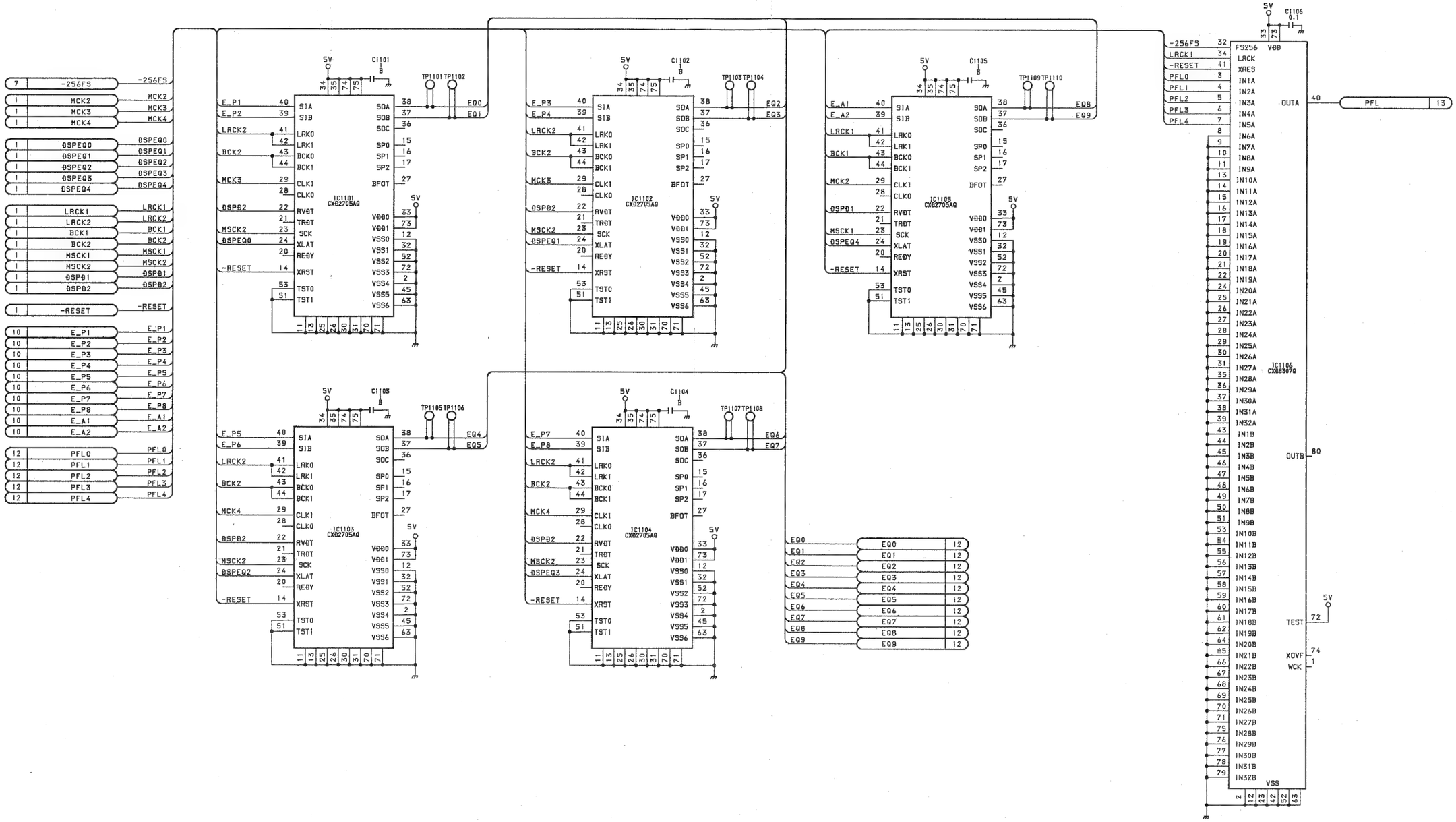
Mixing Board

MIX-17 BOARD (10/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (11/14)



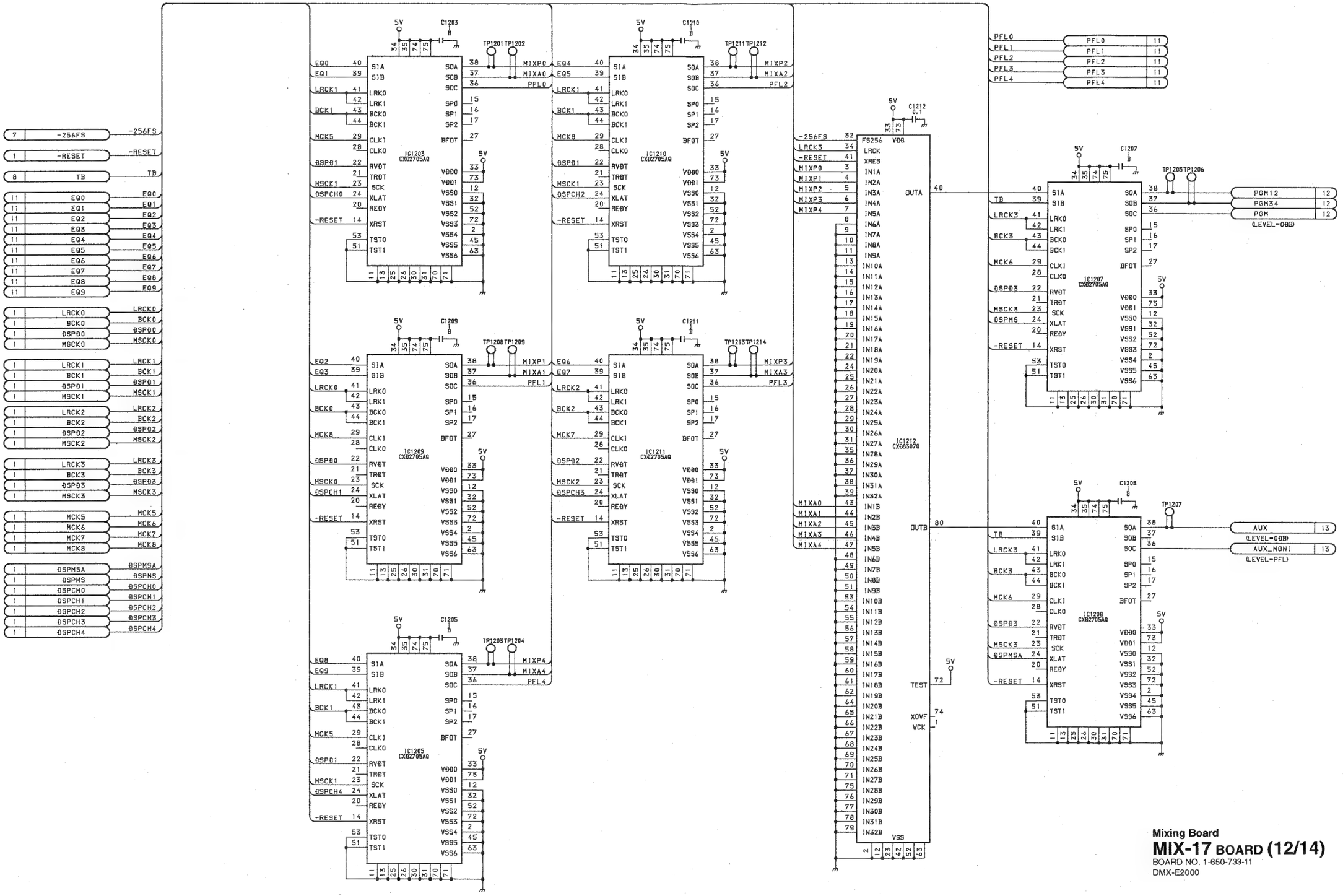
Mixing Board

MIX-17 BOARD (11/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (12/14)



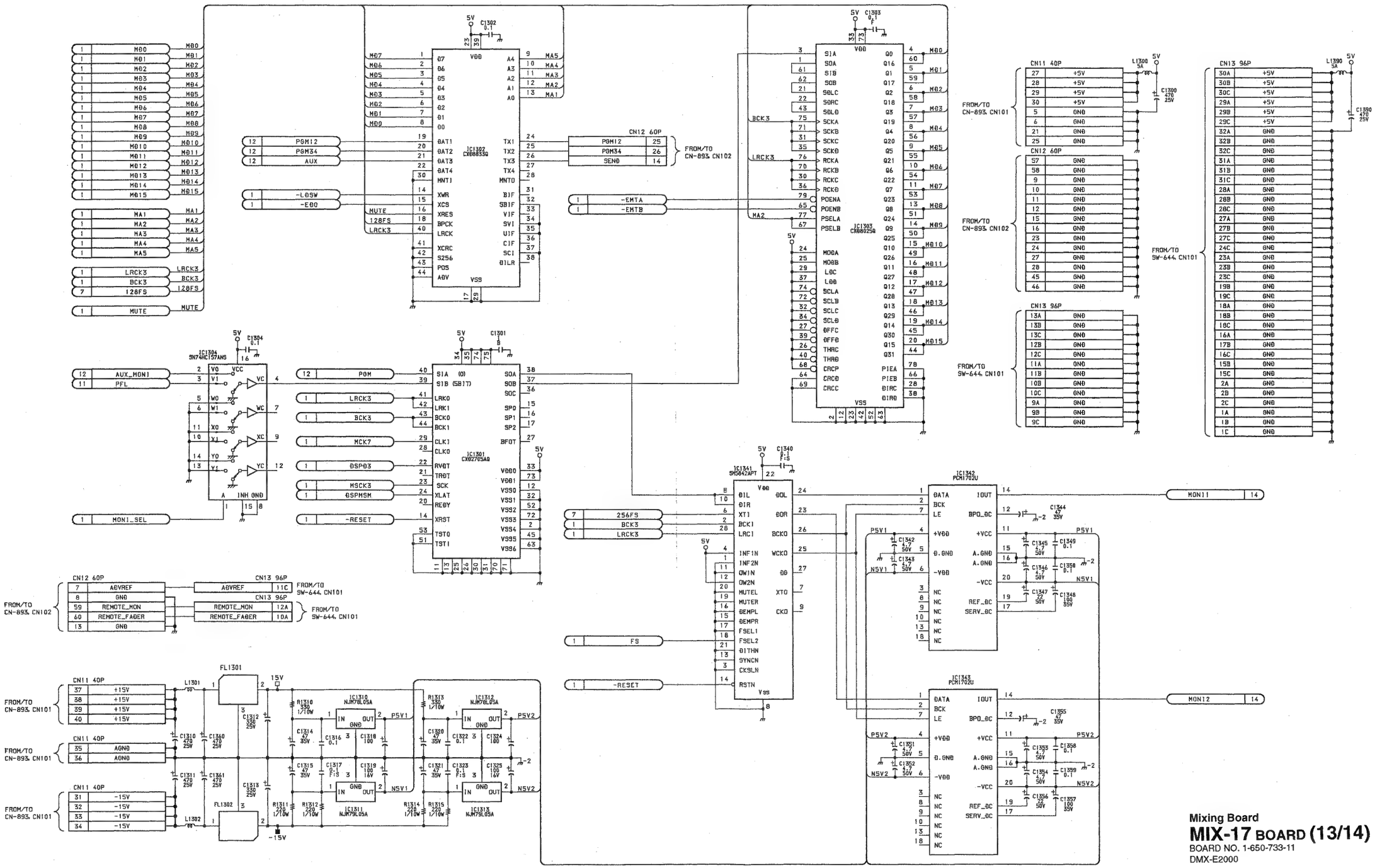
Mixing Board

MIX-17 BOARD (12/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (13/14)



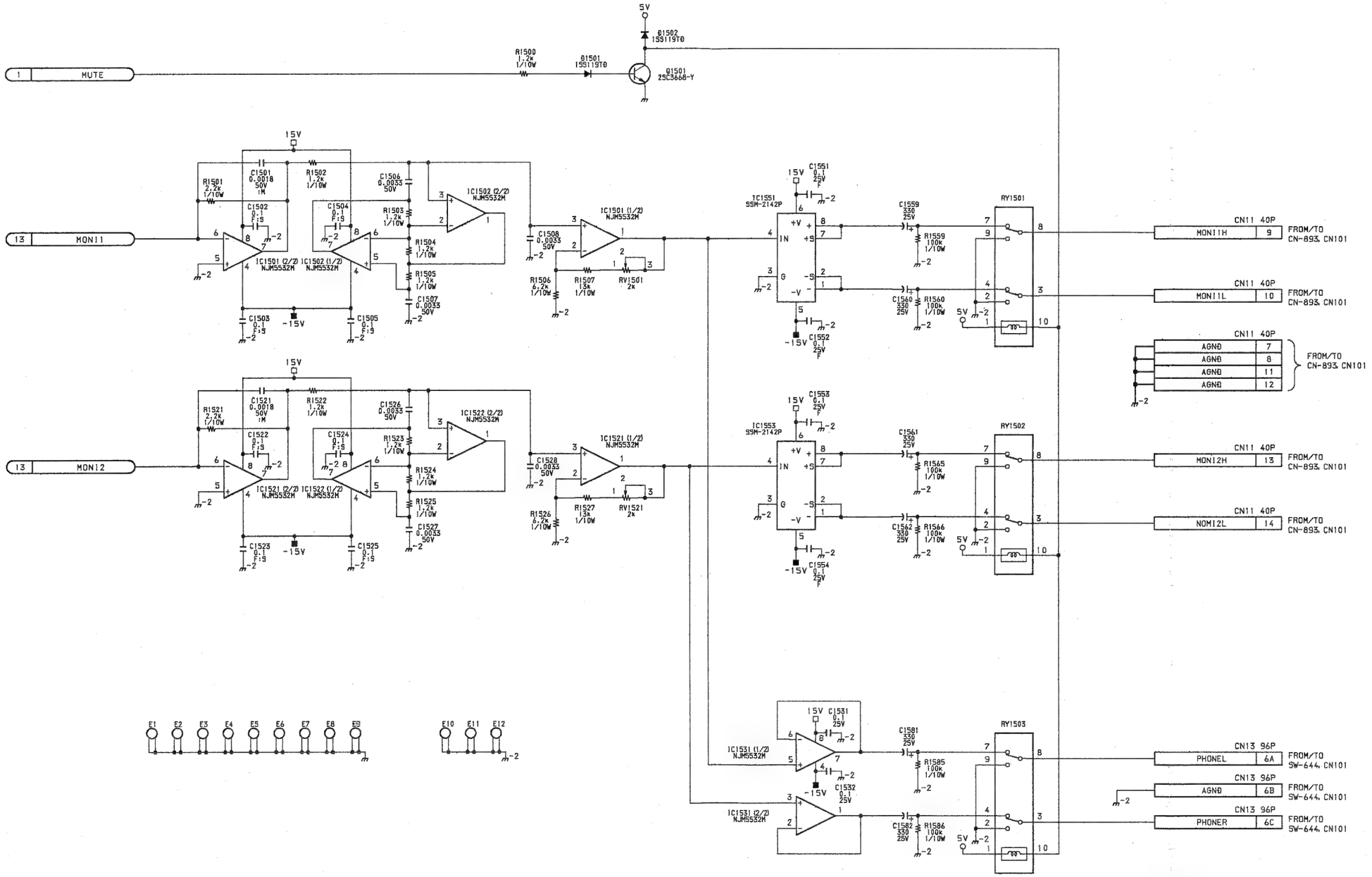
Mixing Board

MIX-17 BOARD (13/14)

BOARD NO. 1-650-733-11

DMX-E2000

MIX-17 BOARD (14/14)



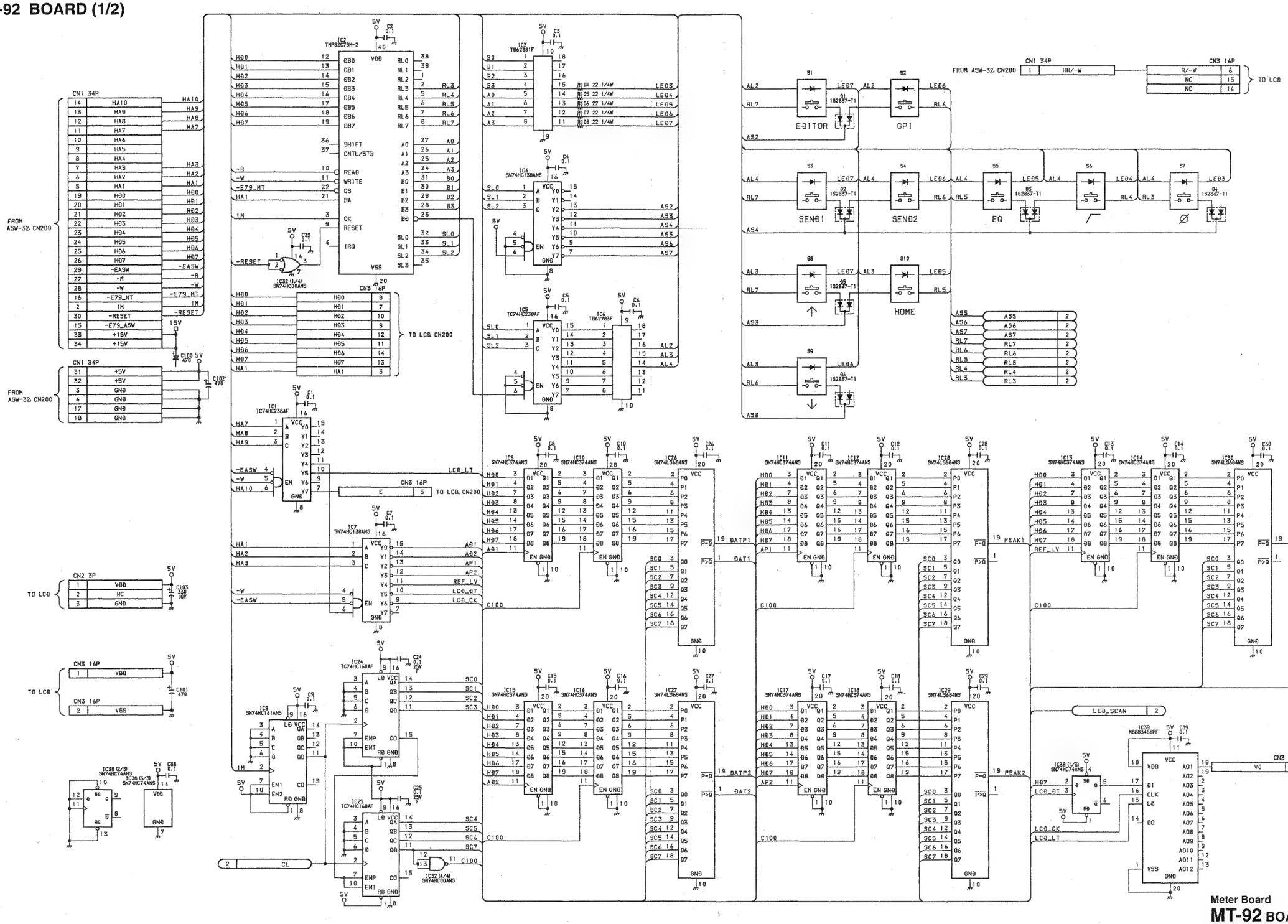
Mixing Board

MIX-17 BOARD (14/14)

BOARD NO. 1-650-733-11

DMX-E2000

MT-92 BOARD (1/2)



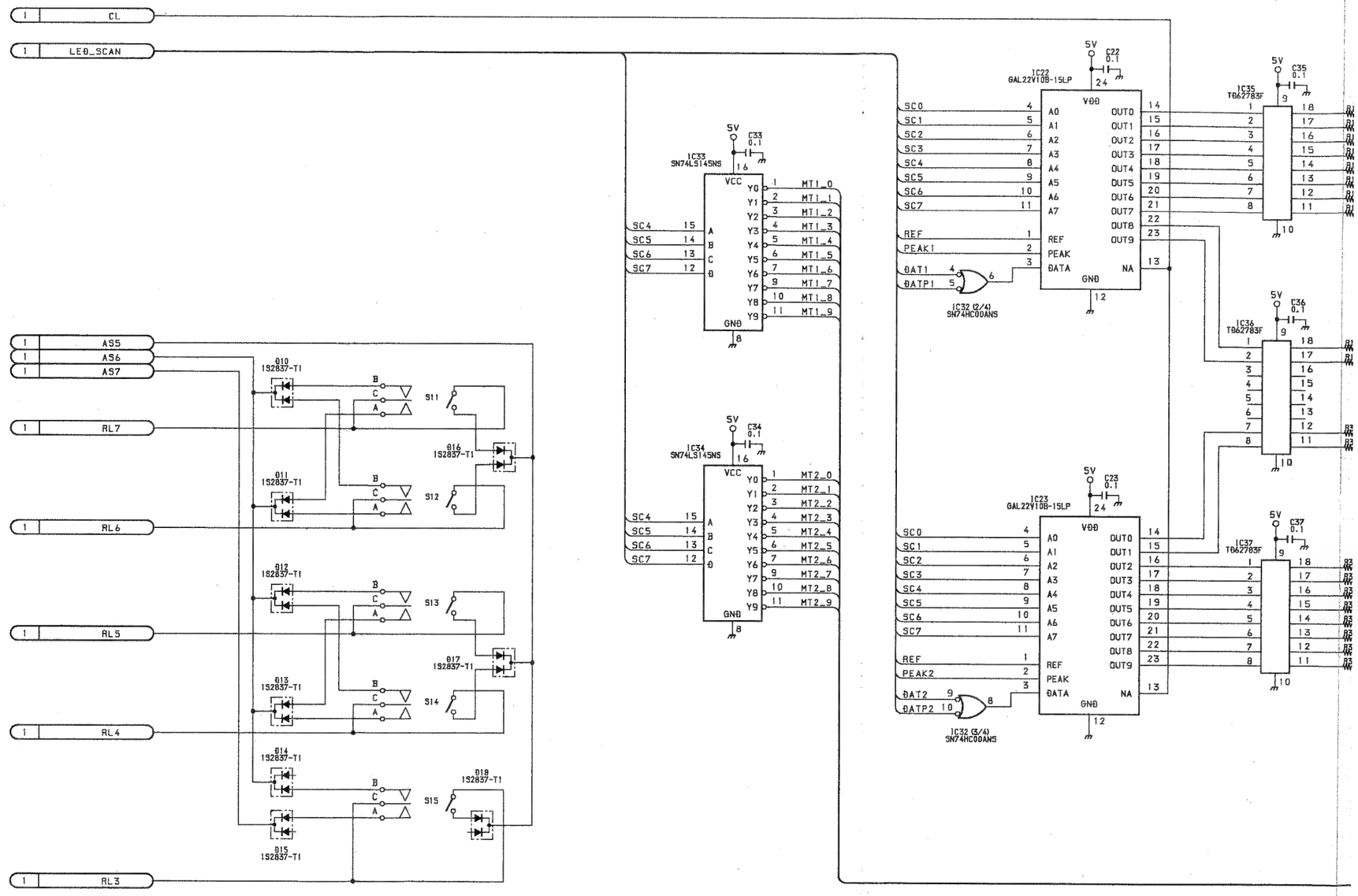
Meter Board

MT-92 BOARD (1/2)

BOARD NO. 1-650-734-11

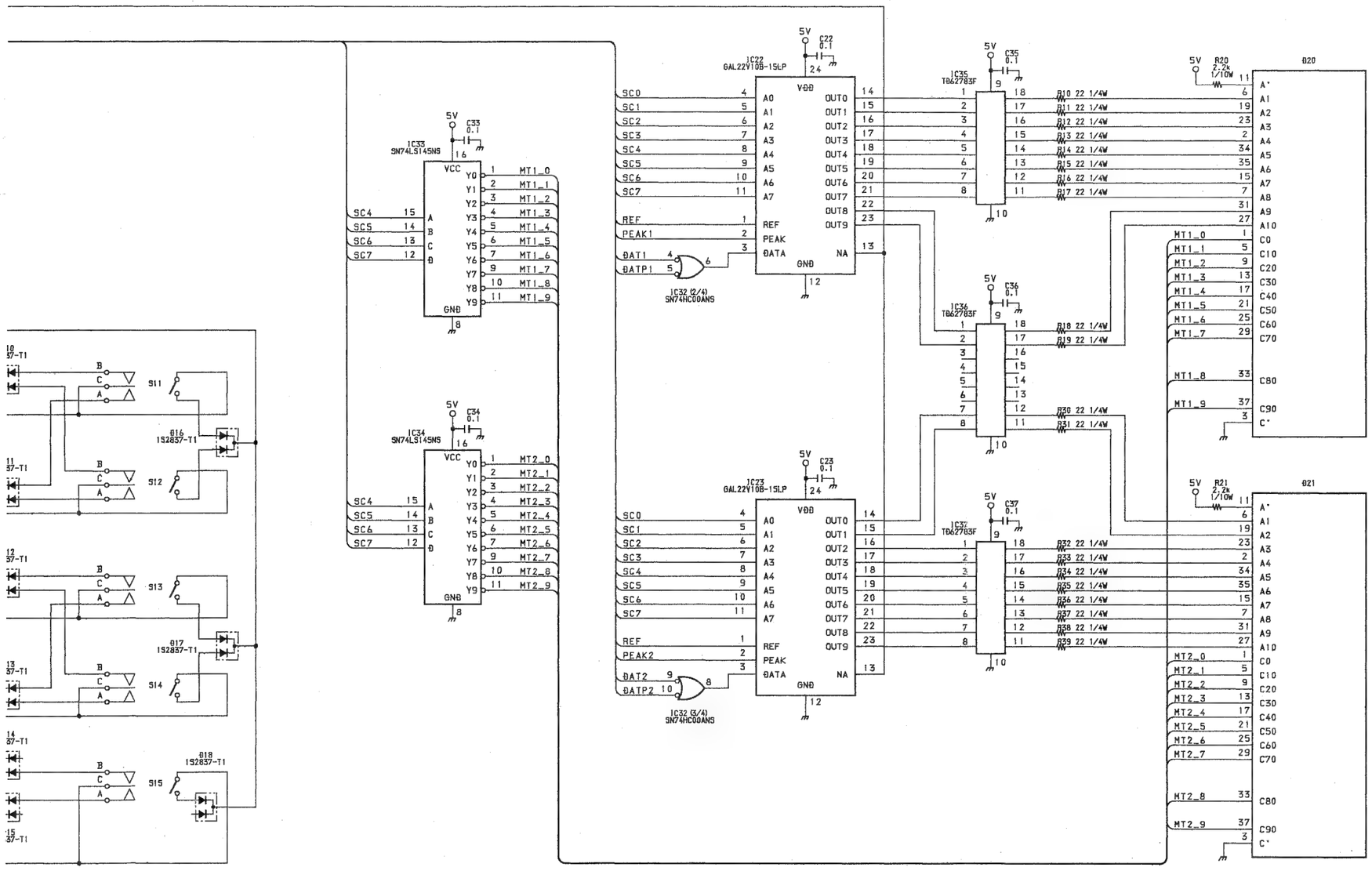
DMX-E2000

MT-92 BOARD (2/2)



A | B | C | D | E | F | G | H

MT-92 (2/2)



Meter Board

MT-92 BOARD (2/2)

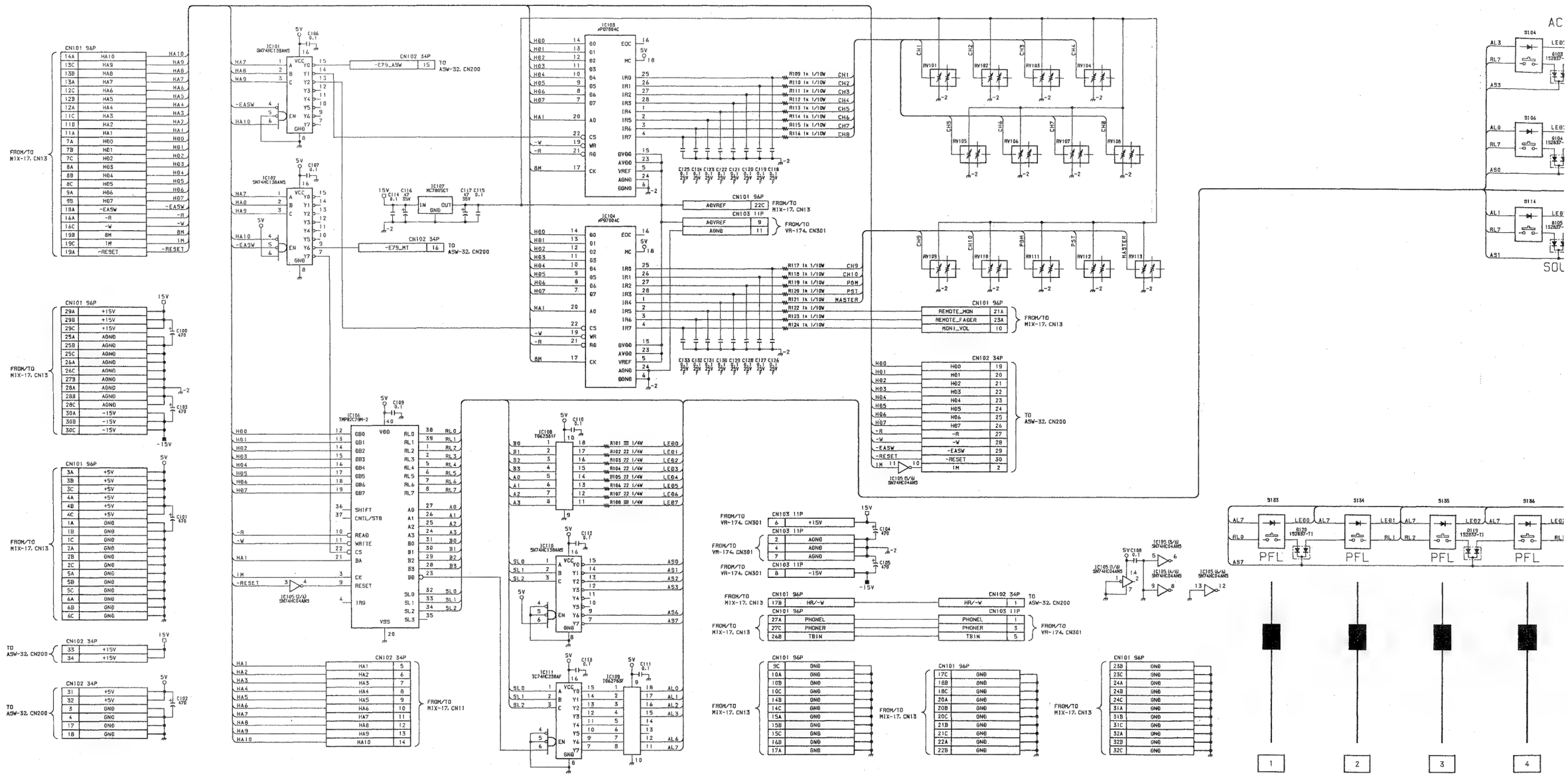
BOARD NO. 1-650-734-11

DMX-E2000

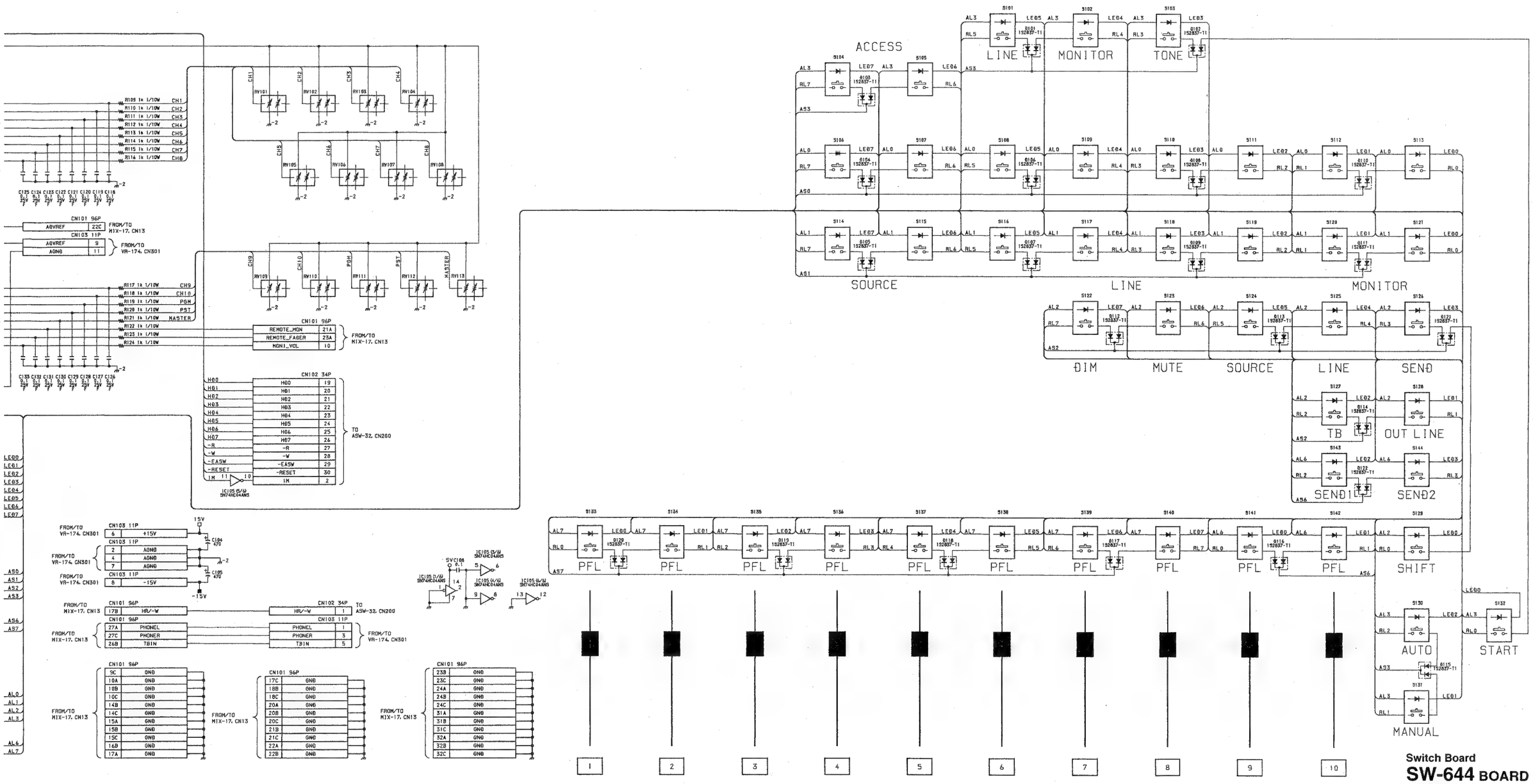
4 - 17

SW-644

SW-644 BOARD



4 - 18



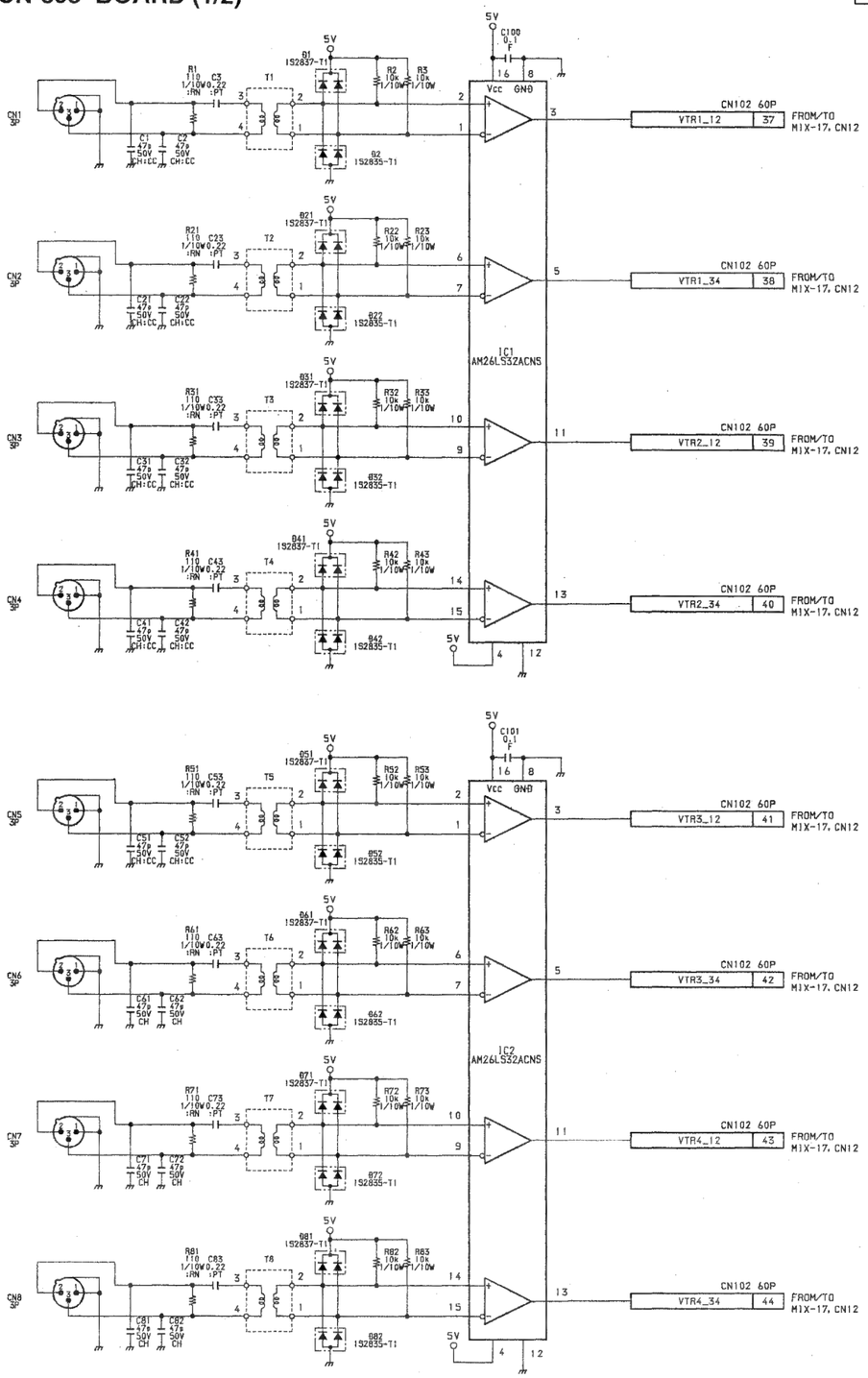
Switch Board

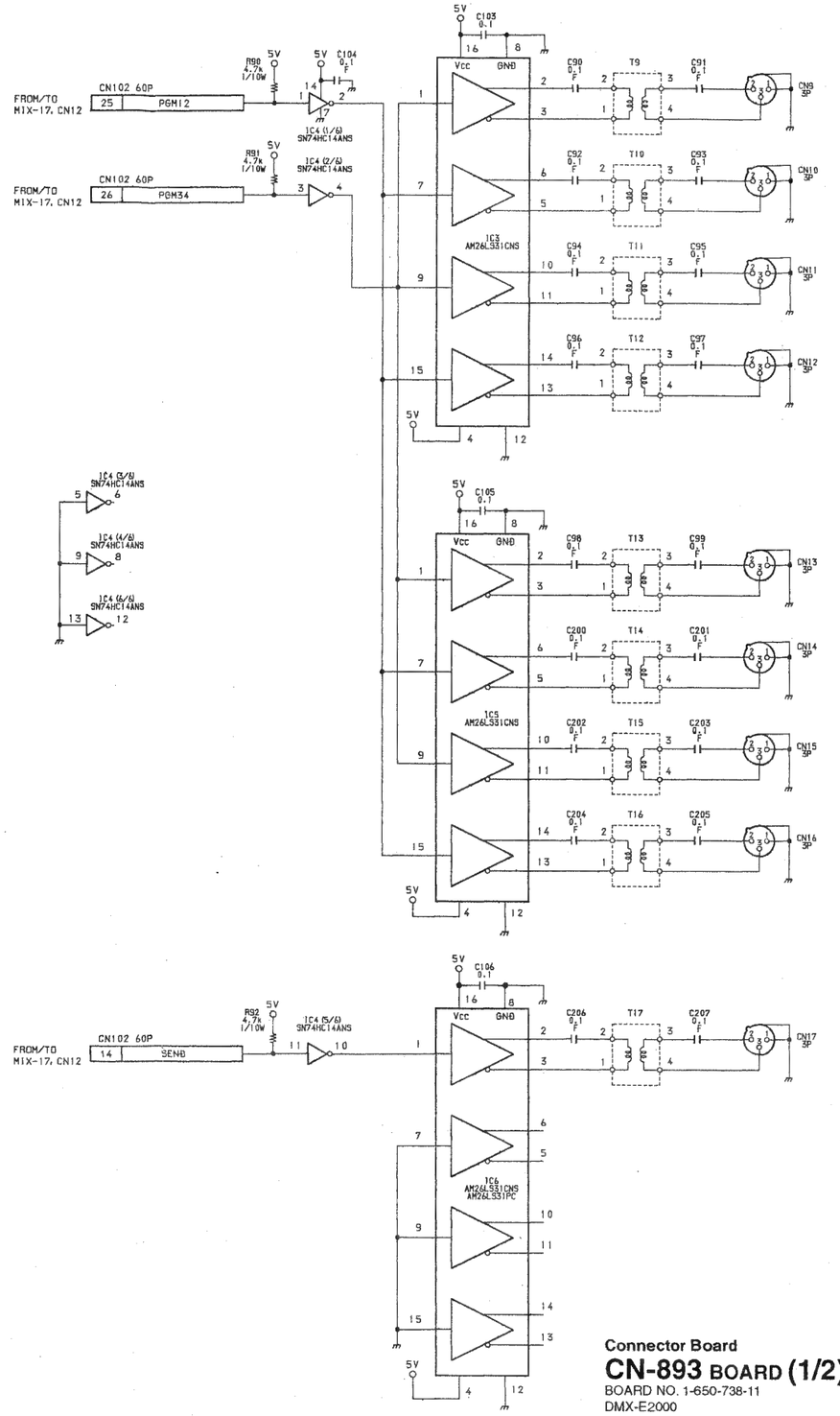
SW-644 BOARD

BOARD NO. 1-650-736-11

DMX-E2000

CN-893 BOARD (1/2)





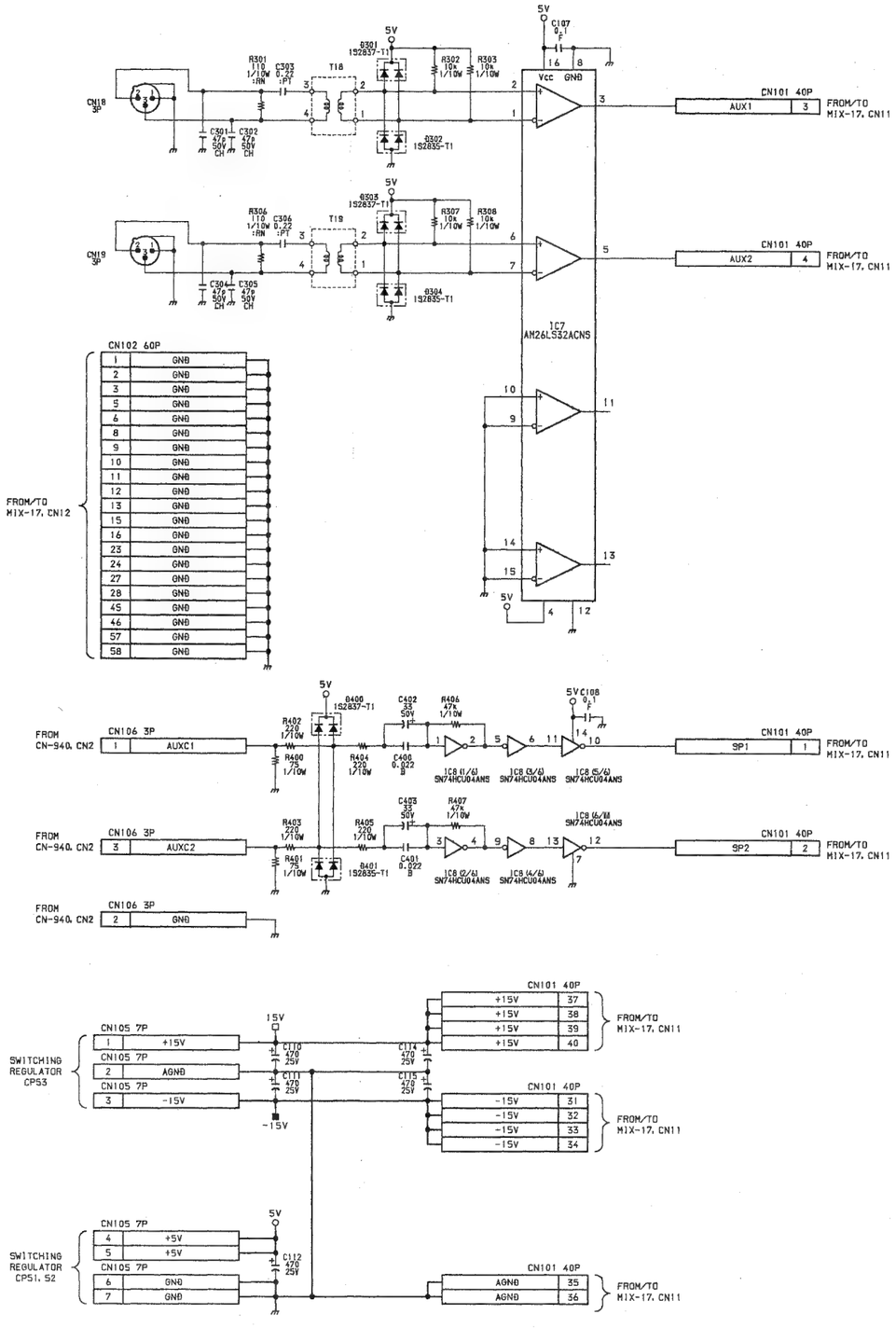
Connector Board

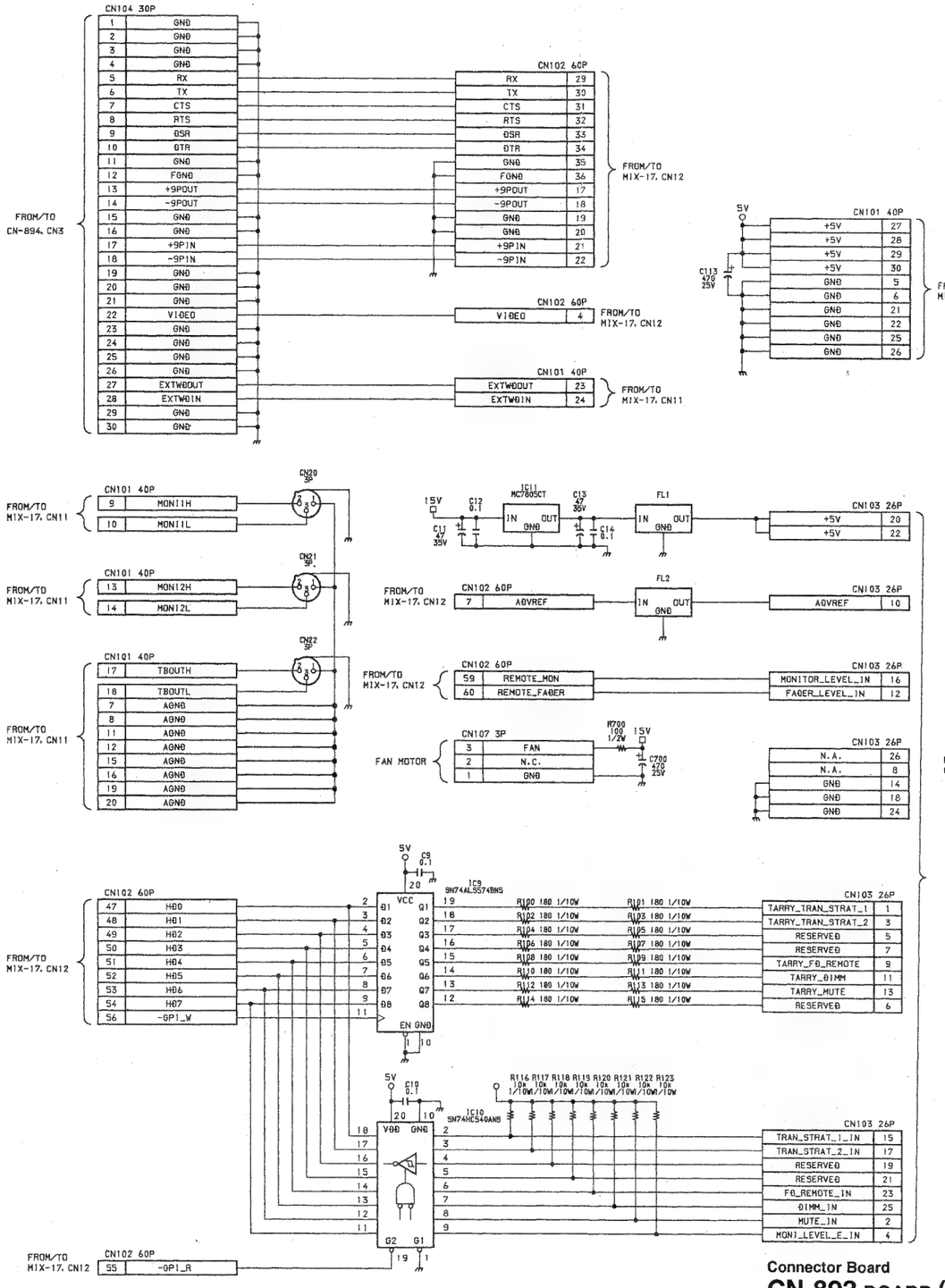
CN-893 BOARD (1/2)

BOARD NO. 1-650-738-11

DMX-E2000

CN-893 BOARD (2/2)





Connector Board

CN-893 BOARD (2/2)

BOARD NO. 1-650-738-11

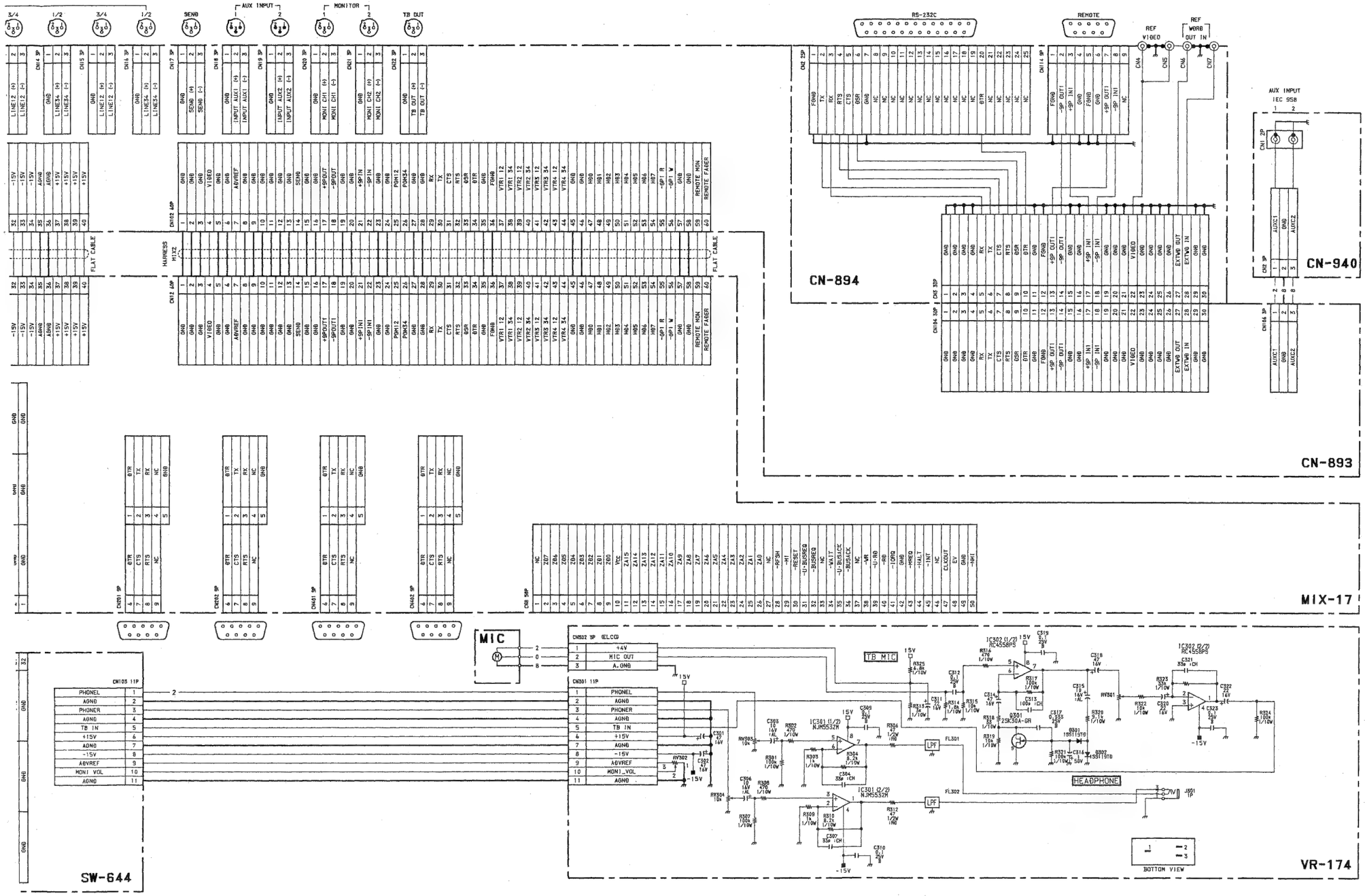
DMX-E2000

FRAME WIRING CN-894, CN-940
VR-174, MIC

FRAME WIRING

CN-894 BOARD
CN-940 BOARD
VR-174 BOARD
MIC BOARD

FRAME WIRING CN-894, CN-940
VR-174, MIC



SECTION 5
SEMICONDUCTOR PIN ASSIGNMENTS

ここに記載されているIC、トランジスタ、ダイオードは、それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。) 部品の交換をする時は、SPARE PARTSの章を参照して下さい。等価回路はICメーカーのData Bookに従いました。

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.
The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

DIODE	PAGE
1S2835	5-2
1S2836	5-2
1S2837	5-2
1SS119	5-2
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ERA85	5-2
HDSP-8825	5-2
KV1460	5-2
MA152WK	5-2
RD??ESB?	5-2
SEL4814D	5-2
TLG124A	5-2
TLR123	5-2
TLR124	5-2

TRANSISTOR	PAGE
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2SC1815	5-3
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2SC3668	5-3
2SJ105	5-3
2SK30A	5-3

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AM26LS32ACNS	5-4
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CXD2705AQ	5-6
CXD8025Q	5-5
CXD8278AQ	5-6
CXD8307Q	5-8
DS1643-120	5-8
GAL16V8B-10LP	5-9
GAL16V8B-7LP	5-9
GAL22V10B-15LP	5-9
HDSP-2111	5-9
LM1881M	5-10
MAX232CWE	5-10
MB8421-90LPFQ	5-10
MB88346BPF	5-11
MC34051M	5-11
MC74F04M	5-11
MC74F32M	5-11
MC7805CT	5-11
MC79L12CP	5-11
NJM5532M	5-12
NJM78L05A	5-12
NJM78L12A	5-12
NJM79L05A	5-11
RC4558PS	5-12
RC5532M	5-12
SM5842AP	5-12
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SN74ALS574BNS	5-14
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SN74HC04ANS	5-14
SN74HC14ANS	5-14
SN74HC32ANS	5-14
SN74HC74ANS	5-14
SN74HC125ANS	5-15

IC	PAGE
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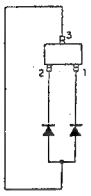
SN74HC132ANS	5-15
SN74HC138ANS	5-15
SN74HC157ANS	5-15
SN74HC161ANS	5-15
SN74HC163ANS	5-16
SN74HC165ANS	5-16
SN74HC245ANS	5-16
SN74HC259ANS	5-16
SN74HC374ANS	5-17
SN74HC393ANS	5-17
SN74HC540ANS	5-17
SN74HC541ANS	5-17
SN74HC574ANS	5-17
SN74HCU04ANS	5-14
SN74LS145NS	5-18
SN74LS684NS	5-18
SN75123NS	5-18
SN75124NS	5-18
SSM-2142P	5-18
TA7805S	5-18
TA7812S	5-18
TC4011UBP	5-18
TC514256BZ-60	5-19
TC74AC08F	5-19
TC74AC74F	5-14
TC74AC163F	5-16
TC74AC175F	5-19
TC74AC541F	5-17
TC74HC07AF	5-19
TC74HC123AF	5-19
TC74HC160AF	5-20
TC74HC238AF	5-20
TC74HC390AF	5-20
TD62381F	5-20
TD62783F	5-20
TL082CPS	5-22
TL082M	5-22
TL084CNS	5-22
TL7705ACPS	5-22

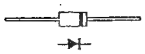
IC	PAGE
TMP68305F-16	5-21
TMP82C79M-2	5-22
TMPZ84C015BF-6	5-24
TMS27C240-12JL	5-25
TMS27C256-12JL	5-25
UPC7805H	5-11
UPD431000AGW-70L	5-26
UPD43256AGU-10L	5-26
UPD43256AGU-10LL	5-26
UPD5201C	5-27
UPD7004C	5-27

DIODE

(SCALE 4/1) TOP VIEW



1S2835
1S2836

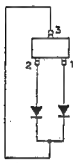


ERA85

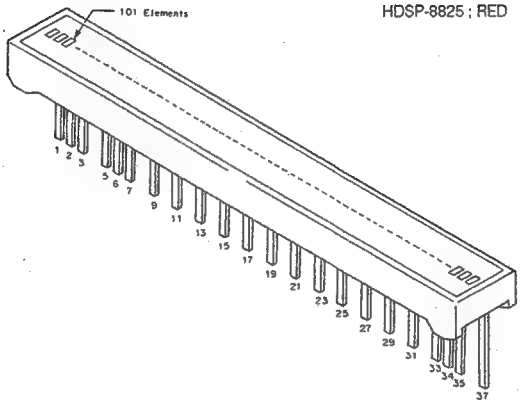
—TOP VIEW—

KV1460

(SCALE 4/1) TOP VIEW

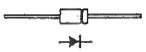


1S2837
MA152WK

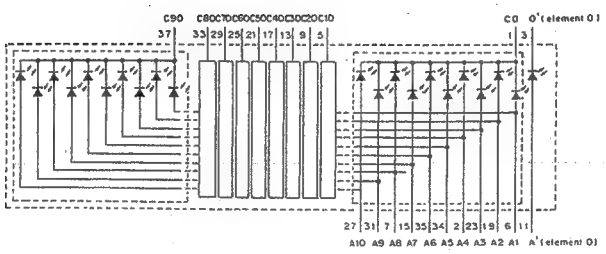


HDSP-8825 ; RED

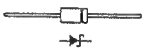
RD ? ? ESB ?



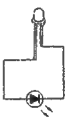
1SS119



SEL4814D ; ORANGE

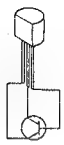


ERA82-004

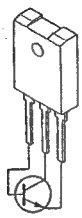


TLG124A ; GREEN
TLR123 ; RED
TLR124 ; RED

TRANSISTOR



2SA1015



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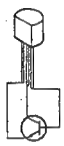

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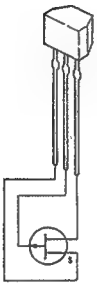
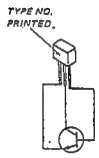


2SJ105



2SC2785
2SC2785E

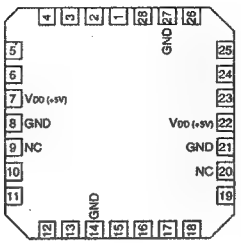
2SK30A

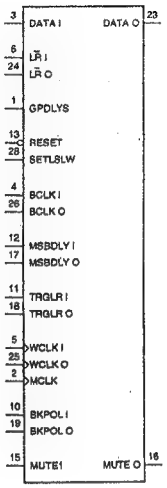
IC

AD1890JP (AD)

STEREO ASYNCHRONOUS SAMPLE RATE CONVERTER

– TOP VIEW –





(VDD = +5V)

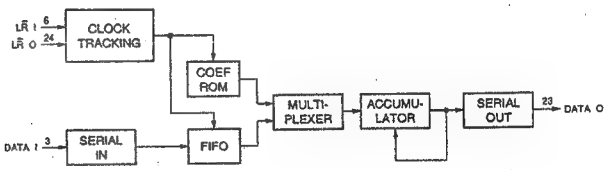
PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	GPDLYS	11	I	TRGLR I	21	—	GND
2	I	MCLK	12	I	MSBDLY I	22	—	VDD
3	I	DATA I	13	I	$\overline{\text{RESET}}$	23	O	DATA O
4	I	BCLK I	14	—	GND	24	I	$\overline{\text{LR}}$ O
5	I	WCLK I	15	I	MUTE I	25	I	WCLK O
6	I	$\overline{\text{LR}}$ I	16	O	MUTE O	26	I	BCLK O
7	—	VDD	17	I	MSBDLY O	27	—	GND
8	—	GND	18	I	TRGLR O	28	I	SETLSLW
9	—	NC	19	I	BKPOL O			
10	I	BKPOL I	20	—	NC			

INPUT

BCLK I	; BIT CLOCK INPUT FOR INPUT DATA
BCLK O	; BIT CLOCK INPUT FOR OUTPUT DATA
BKPOL I, BKPOL O	; BIT CLOCK POLARITY
DATA I	; SERIAL INPUT, MSB FIRST
GPDLYS	; GROUP DELAY-SHORT
$\overline{\text{LR}}$ I	; LEFT/$\overline{\text{RIGHT}}$ CLOCK INPUT FOR INPUT DATA
$\overline{\text{LR}}$ O	; LEFT/$\overline{\text{RIGHT}}$ CLOCK INPUT FOR OUTPUT DATA
MCLK	; MASTER CLOCK INPUT
MSBDLY I, MSBDLY O	; MSB DELAY
MUTE I	; MUTE INPUT
$\overline{\text{RESET}}$	; ACTIVE LOW RESET
SETLSLW	; SETTLE SLOW TO CHANGES IN SAMPLE RATES
TRGLR I, TRGLR O	; TRIGGER ON $\overline{\text{LR}}$
WCLK I	; WORD CLOCK INPUT FOR INPUT DATA
WCLK O	; WORD CLOCK INPUT FOR OUTPUT DATA

OUTPUT

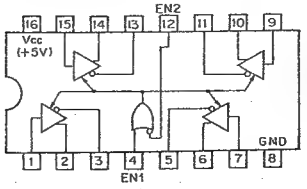
DATA O	; SERIAL OUTPUT, MSB FIRST
MUTE O	; MUTE OUTPUT



AM26LS31CNS (TI) FLAT PACKAGE

HIGH SPEED DIFFERENTAL LINE DRIVER

– TOP VIEW –

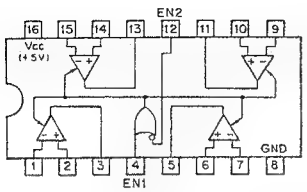


FUNCTION TABLE

EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

0 ; LOW LEVEL
1 ; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

AM26LS32ACNS (TI) FLAT PACKAGE
HIGH SPEED DIFFERENTAL LINE RECEIVER
– TOP VIEW –



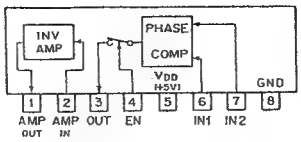
FUNCTION TABLE

EN2	EN1	OUTPUT
0	0	ENABLE
0	1	ENABLE
1	0	HI-Z
1	1	ENABLE

0 ; LOW LEVEL
1 ; HIGH LEVEL
HI-Z ; HIGH IMPEDANCE

	SENSE	INPUT VOLT
C32/LS32	± 200mV	± 7V
LS33	± 500mV	± 15V

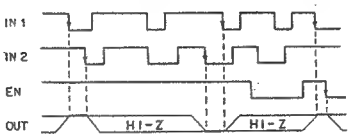
CX23065A (SONY)
N-MOS PHASE COMPARATOR WITH INVERSION AMPLIFIER
– PRINTED SIDE VIEW –



EN	OUT
1	ACTIVE
0	HIGH IMPEDANCE

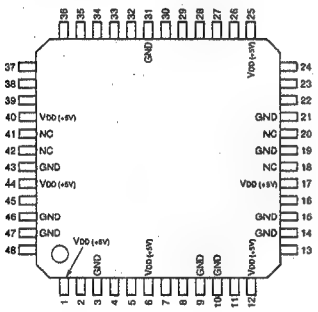
1 ; HIGH LEVEL
0 ; LOW LEVEL

TIMING CHART



HI-Z ; HI-IMPEDANCE

CXD2555Q (SONY)
C-MOS AUDIO 1-BIT AD/DA CONVERTER
– TOP VIEW –



(VDD = +5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	—	VDD	13	O	AOUT2 (–)	25	—	VDD	37	I	DASL0
2	O	AOUT1 (+)	14	—	GND	26	I	MS	38	I	DASL1
3	—	GND	15	—	GND	27	I/O	LRCK	39	I	WO
4	O	UCLK	16	I	AIN2	28	I/O	BCK	40	—	VDD
5	O	XCLK	17	—	VDD	29	I	SIN	41	—	NC
6	—	VDD	18	—	NC	30	O	SOUT	42	—	NC
7	I	XTLI	19	—	GND	31	—	GND	43	—	GND
8	O	XTLO	20	—	NC	32	I	MASL	44	—	VDD
9	—	GND	21	—	GND	33	I	MLSL	45	I	AIN1
10	—	GND	22	O	XMCK2	34	I	XSL0	46	—	GND
11	O	AOUT2 (+)	23	I	TEST	35	I	XSL1	47	—	GND
12	—	VDD	24	I	CLR	36	I	XSL2	48	O	AOUT1 (–)

INPUT

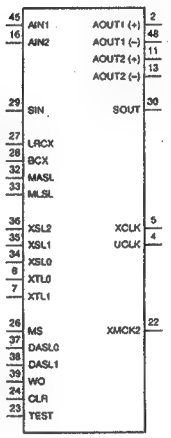
AIN1, AIN2	; CH1/CH2 AD CONVERTER ANALOG INPUT
CLR	; SYSTEM CLEAR (H: NORMAL/L: CLEAR)
DASL0	; IC TEST PIN (H: NORMAL)
DASL1	; IC TEST PIN (L: NORMAL)
MASL	; FOR SERIAL I/O WITH 16-BIT SERIAL DATA, SELECTS EITHER THE FIRST 16-BIT SLOT OR THE LAST 16-BIT SLOT OF THE 32-BIT SLOT. (H: FORWARD PACKING, L: REARWARD PACKING)
MLSL	; LSB FIRST/MSB FIRST SELECT (H: MSB FIRST/L: LSB FIRST)
MS	; MASTER/SLEAVE MODE SELECT (H: MASTER MODE/L: SLEAVE MODE)
SIN	; SERIAL DATA INPUT (1 SAMPLING 2 CHANNEL)
TEST	; TEST PIN
WO	; WINDOW OPEN FOR SYNCRONOUS (H: WINDOW MASK/L: WINDOW OPEN)
XSL0, XSL1, XSL2	; CRYSTAL SELECT
XTL1	; CRYSTAL OSCILLATOR INPUT

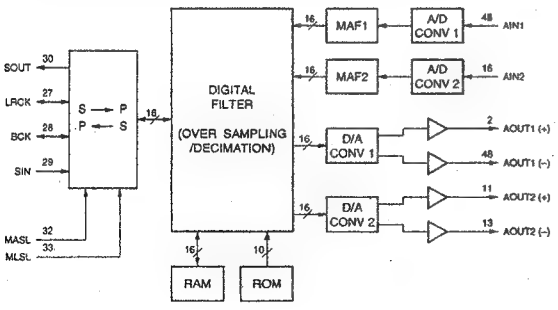
OUTPUT

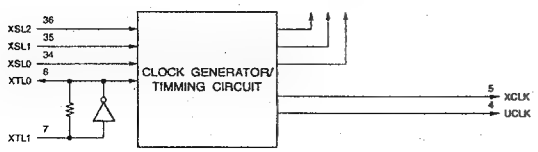
AOUT1 (+), AOUT2 (+)	; CH1/CH2 DA CONVERTER ANALOG (+) OUTPUTS
AOUT1 (–), AOUT2 (–)	; CH1/CH2 DA CONVERTER ANALOG (–) OUTPUTS
SOUT	; SERIAL OUTPUT (1 SAMPLING 2 CHANNEL)
UCLK	; USER CLOCK
XCLK	; 256Fs CLOCK
XMCK2	; IC TEST PIN (L: NORMAL)
XTL0	; CRYSTAL OSCILLATOR OUTPUT

INPUT/OUTPUT

BCK	;SERIAL BIT TRANSFER CLOCK FOR SERIAL I/O
LRCK	; SAMPLING FREQUENCY CLOCK FOR SERIAL I/O



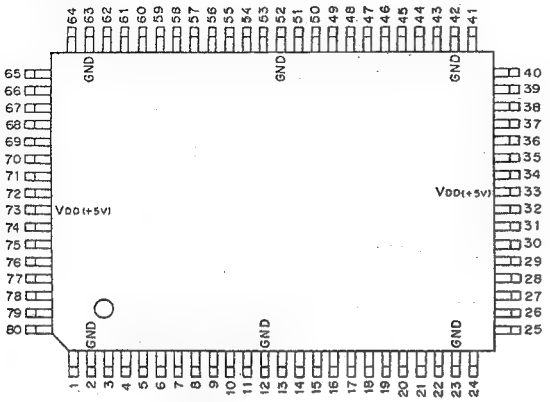




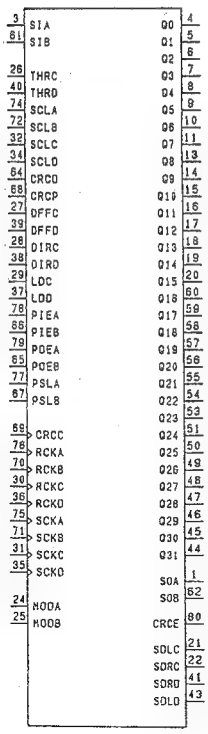
CXD8025Q (SONY) FLAT PACKAGE

32-BIT SERIAL-PARALLEL/PARALLEL-SERIAL CONVERTER

– TOP VIEW –



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	O	SOA	21	I/O	SDLC	41	I/O	SDRD	61	I	SIB
2	–	GND	22	I/O	SDRC	42	–	GND	62	O	SOB
3	I	SIA	23	–	GND	43	I/O	SDLD	63	–	GND
4	I/O	Q0	24	I	MODA	44	I/O	Q31	64	I	CRCD
5	I/O	Q1	25	I	MODB	45	I/O	Q30	65	I	POEB
6	I/O	Q2	26	I	THRC	46	I/O	Q29	66	I	PIEB
7	I/O	Q3	27	I	DFFC	47	I/O	Q28	67	I	PSLB
8	I/O	Q4	28	I	DIRC	48	I/O	Q27	68	I	CRCP
9	I/O	Q5	29	I	LDC	49	I/O	Q26	69	I	CRCC
10	I/O	Q6	30	I	RCKC	50	I/O	Q25	70	I	RCKB
11	I/O	Q7	31	I	SCKC	51	I/O	Q24	71	I	SCKB
12	–	GND	32	I	SCLC	52	–	GND	72	I	SCLB
13	I/O	Q8	33	–	VDD (+5V)	53	I/O	Q23	73	–	VDD (+5V)
14	I/O	Q9	34	I	SCLD	54	I/O	Q22	74	I	SCLA
15	I/O	Q10	35	I	SCKD	55	I/O	Q21	75	I	SCKA
16	I/O	Q11	36	I	RCKD	56	I/O	Q20	76	I	RCKA
17	I/O	Q12	37	I	LDD	57	I/O	Q19	77	I	PSLA
18	I/O	Q13	38	I	DIRD	58	I/O	Q18	78	I	PIEA
19	I/O	Q14	39	I	DFFD	59	I/O	Q17	79	I	POEA
20	I/O	Q15	40	I	THRD	60	I/O	Q16	80	O	CRCE



INPUT

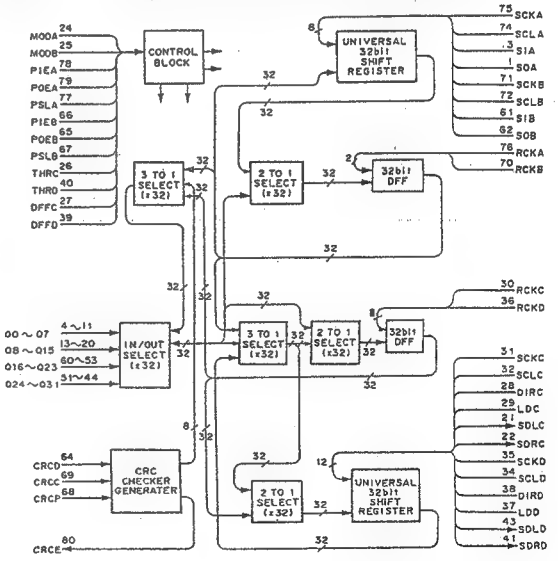
CRCC	; CLOCK INPUT FOR CRC CHECKER/GENERATOR
CRCD	; DATA INPUT FOR CRC CHECKER/GENERATOR
CRCP	; PRESET INPUT FOR CRC CHECKER/GENERATOR
DFFC	; DFF MODE SET FOR C BLOCK (MODE = 0) PARALLEL LOAD CONTROL FOR A BLOCK SHIFT REGISTOR (MODE = 2)
DFFD	; DFF MODE SET FOR D BLOCK (MODE = 0) PARALLEL LOAD CONTROL FOR B BLOCK SHIFT REGISTOR (MODE = 2) DISABLE (MODE 1, 3)
DIRC	; SHIFT DIRECTION SET FOR C BLOCK SHIFT REGISTER
DIRD	; SHIFT DIRECTION SET FOR D BLOCK SHIFT REGISTER
LDC	; PARALLEL LOAD CONTROL FOR C BLOCK SHIFT REGISTER
LDD	; PARALLEL LOAD CONTROL FOR D BLOCK SHIFT REGISTER
MODA, MODB	; MODE (0, 1, 2, 3) SET
PIEA	; PARALLEL IN ENABLE FOR AC BLOCK
PIEB	; PARALLEL IN ENABLE FOR BD BLOCK
POEA	; PARALLEL OUT ENABLE FOR AC BLOCK
POEB	; PARALLEL OUT ENABLE FOR BD BLOCK
PSLA	; PARALLEL DATA SELECT FOR AC BLOCK
PSLB	; PARALLEL DATA SELECT FOR BD BLOCK
RCKA	; CLOCK FOR A BLOCK DFF
RCKB	; CLOCK FOR B BLOCK DFF
RCKC	; CLOCK FOR C BLOCK DFF
RCKD	; CLOCK FOR D BLOCK DFF
SCKA	; CLOCK FOR A BLOCK SHIFT REGISTER
SCKB	; CLOCK FOR B BLOCK SHIFT REGISTER
SCKC	; CLOCK FOR C BLOCK SHIFT REGISTER
SCKD	; CLOCK FOR D BLOCK SHIFT REGISTER
SCLA	; ASYNCHRONOUS CLEAR FOR A BLOCK SHIFT REGISTER
SCLB	; ASYNCHRONOUS CLEAR FOR B BLOCK SHIFT REGISTER
SCLC	; ASYNCHRONOUS CLEAR FOR C BLOCK SHIFT REGISTER
SCLD	; ASYNCHRONOUS CLEAR FOR D BLOCK SHIFT REGISTER
SIA	; SERIAL DATA OUTPUT FOR A BLOCK SHIFT REGISTER
SIB	; SERIAL DATA OUTPUT FOR B BLOCK SHIFT REGISTER
THRC	; THOROUGH SET FOR C BLOCK DFF (L : THOROUGH)
THRD	; THOROUGH SET FOR D BLOCK DFF (L : THOROUGH)

OUTPUT

CRCE	; CHECK OUTPUT FOR CRC CHECKER/GENERATOR
SOA	; SERIAL DATA OUTPUT FOR A BLOCK SHIFT REGISTER
SOB	; SERIAL DATA OUTPUT FOR B BLOCK SHIFT REGISTER

INPUT/OUTPUT

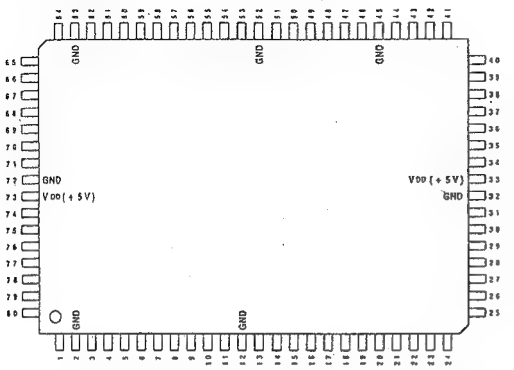
Q0 – Q7	; PARALLEL DATA FOR AC BLOCK
Q8 – Q15	; PARALLEL DATA FOR AC BLOCK (MODE 0, 2, 3) PARALLEL DATA FOR BD BLOCK (MODE = 1)
Q23 – Q16	; PARALLEL DATA FOR BD BLOCK
Q31 – Q24	; PARALLEL DATA FOR BD BLOCK
SDLC	; SERIAL DATA (L SIDE) FOR C BLOCK SHIFT REGISTER
SDRC	; SERIAL DATA (R SIDE) FOR C BLOCK SHIFT REGISTER
SDLD	; SERIAL DATA (L SIDE) FOR D BLOCK SHIFT REGISTER
SDRD	; SERIAL DATA (R SIDE) FOR D BLOCK SHIFT REGISTER



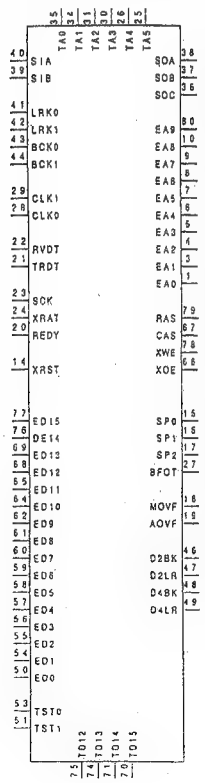
CXD2705AQ (SONY) FLAT PACKAGE

C-MOS DIGITAL AUDIO SIGNAL PROCESSOR

– TOP VIEW –



PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	O	EA0	21	O	TRDT	41	I	LRK0	61	I/O	ED8
2	-	GND	22	I	RVDT	42	I	LRK1	62	I/O	ED9
3	O	EA1	23	I	SCK	43	I	BCK0	63	-	GND
4	O	EA2	24	I	XLAT	44	I	BCK1	64	I/O	ED10(GND)
5	O	EA3	25	I	TA5	45	-	GND	65	I/O	ED11(GND)
6	O	EA4	26	I	TA4	46	O	D2BK	66	O	XOE
7	O	EA5	27	O	BFOT	47	O	D2LR	67	O	CAS
8	O	EA6	28	O	CLKO	48	O	D4BK	68	I/O	ED12
9	O	EA7	29	I	CLKI	49	O	D4LR	69	I/O	ED13
10	O	EA8	30	I	TA3	50	I/O	ED0	70	I	TD15
11	I	TA7	31	I	TA2	51	I	TST1	71	I	TD14
12	-	GND	32	-	GND	52	-	GND	72	-	GND
13	I	TA6	33	-	VDD (+5V)	53	I	TST0	73	-	VDD (+5V)
14	I	XRST	34	I	TA1	54	I/O	ED1	74	I	TD13
15	O	SP0	35	I	TA0	55	I/O	ED2	75	I	TD12
16	O	SP1	36	O	SOC	56	I/O	ED3	76	I/O	ED14
17	O	SP2	37	O	SOB	57	I/O	ED4	77	I/O	ED15
18	O	MOVF	38	O	SOA	58	I/O	ED5	78	O	XWE
19	O	AOVF	39	O	SIB	59	I/O	ED6	79	O	RAS
20	O	REDY	40	O	SIA	60	I/O	ED7	80	O	EA9



INPUT

BCK0,BCK1;BIT CLOCK

CLKI ;CLOCK

LRK0,LRK1;LR CLOCK

RVDT ;DATA FOR HC I/F

SCK ;SIFT CLOCK FOR HC I/F

SIA,SIB ;SERIAL DATA

TA0-TA7 ;TEST

TD12-TD15;TEST

TST0,TST1;TEST(NORMAL 'L')

XLAT ;MODE PARTITION SIGNAL

XRST ;RESET

OUTPUT

AOVF ;ALU OVERFLOW SIGNAL

BFOT ;CLOCK BUFFER

CAS ;COLUMN-ADDRESS STROBE FOR EXT. DATA RAM

CLKO ;CLOCK

D2BK ;1/2 BIT CLOCK

D2LR ;1/2 LR CLOCK

D4BK ;1/4 BIT CLOCK

D4LR ;1/4 LR CLOCK

EA0-EA9 ;ADDRESS FOR EXT. DATA RAM

MOVF ;MAC OVERFLOW SIGNAL

RAS ;ROW-ADDRESS STROBE FOR EXT. DATA RAM

REDY ;READY SIGNAL FOR HC I/F

SOA-SOC ;SERIAL DATA

SP0-SP2 ;STATIC PORT 0,1,2

TRDT ;DATA FOR HC I/F

XOE ;OUTPUT ENABLE FOR EXT. DATA RAM

XWE ;WRITE ENABLE FOR EXT. DATA RAM

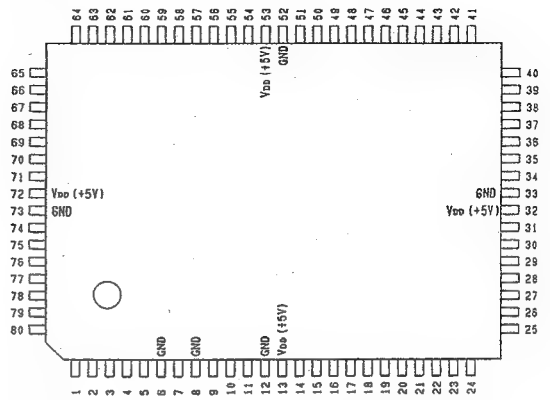
INPUT/OUTPUT

ED0-ED15 ;DATA INPUT/OUTPUT FOR EXT. DATA RAM

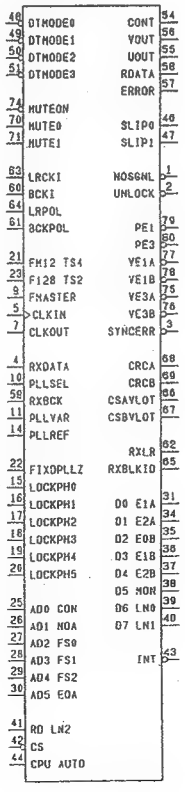
CXD8278AQ (SONY)

C-MOS DIGITAL AUDIO SIGNAL (AES/EBU) DECODER

– TOP VIEW –



Pin No.	I/O	SIGNAL	Pin No.	I/O	SIGNAL	Pin No.	I/O	SIGNAL	Pin No.	I/O	SIGNAL
1	O	NOSGNL	21	I/O	FM12 TS4	41	I/O	RD LN2	61	I	BCKPOL
2	O	UNLOCK	22	I/O	FIXDPLLZ	42	I	CS	62	O	RXLR
3	O	SYNCERR	23	I/O	F128 TS2	43	O	INT	63	I	LRCKI
4	I	RXDATA	24	I	TST3	44	I	CPU_AUTO	64	I	LRPOL
5	I	CLKIN	25	I/O	AD0 CON	45	I	TST1	65	O	RXBLKID
6	-	GND	26	I/O	AD1 NOA	46	O	SLIP0	66	O	CSAVLOT
7	O	CLKOUT	27	I/O	AD2 FS0	47	O	SLIP1	67	O	CSBVLOT
8	-	GND	28	I/O	AD3 FS1	48	I	DTMODE0	68	O	CRCA
9	O	FMASTER	29	I/O	AD4 FS2	49	I	DTMODE1	69	O	CRCB
10	I	PLLSEL	30	I/O	AD5 EOA	50	I	DTMODE2	70	I	MUTE0
11	O	PLLVAR	31	O	00 E1A	51	I	DTMODE3	71	I	MUTE1
12	-	GND	32	-	VDD	52	-	GND	72	-	VDD
13	-	VDD	33	-	GND	53	-	VDD	73	-	GND
14	O	PLLREF	34	O	01 E2A	54	O	COUT	74	I	MUTEON
15	I/O	LOCKPH0	35	O	02 E0B	55	O	UOUT	75	O	VE3A
16	I/O	LOCKPH1	36	O	03 E1B	56	O	VOUT	76	O	VE3B
17	I/O	LOCKPH2	37	O	04 E2B	57	O	ERROR	77	O	VE1A
18	I/O	LOCKPH3	38	O	05 MON	58	O	RDATA	78	O	VE1B
19	I/O	LOCKPH4	39	O	06 LN0	59	O	RXBCK	79	O	PE1
20	I/O	LOCKPH5	40	O	07 LN1	60	I	BCKI	80	O	PE3



INPUT

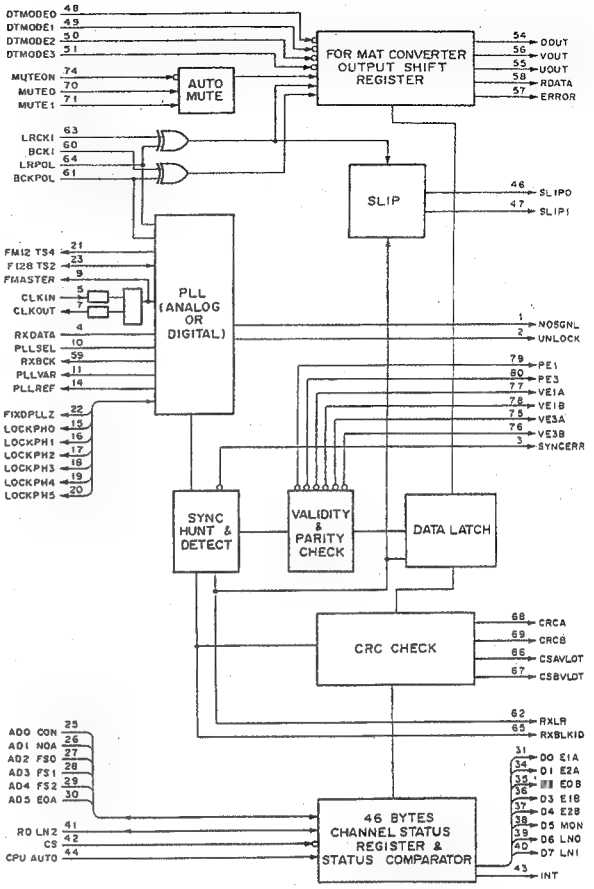
BCKI	; REFERENCE BIT CLOCK (64/32Fs)
BCKPOL	; POLARITY SWITCHING SIGNAL OF BCKI (PIN NO.60) AND RXBCK (PIN NO.59)
CLKIN	; MASTER CLOCK OSCILLATOR INPUT AT DIGITAL PLL
CPU AUTO	; SELECTS CPU INTERFACE OR AUTO INTERFACE. ("H" : AUTO INTERFACE, "L" : CPU INTERFACE)
$\overline{CS}$	; CHIP SELECT SIGNAL (INPUT FOR CHANNEL STATUS RESISTER) ("L" : SELECT)
DTMODE0 – 3	; OUTPUT FORMAT SPECIFYING CODE OF RDATA SIGNAL (PIN NO.58)
LRCKI	; REFERENCE L/R CLOCK INPUT (Fs PERIOD)
LRPOL	; POLARITY SWITCHING SIGNAL OF LRCKI (PIN NO.63) AND RXLR (PIN NO.62)
MUTE0,1	; RDATA (PIN NO.58) MUTE PERIOD SETTING CODE
$\overline{MUTEON}$	; "L" : AUDIO OUTPUT BE FORCIBLY MUTE ON FOR A CERTAIN PERIOD
PLLSEL	; "L" : ANALOG PLL, "H" : DIGITAL PLL
RXDATA	; AES/EBU INPUT
TST1	; TEST INPUT (NORMALLY FIXED TO "L".)
TST3	; TEST PIN (FIXED TO "L".)

OUTPUT

CLKOUT	; MASTER CLOCK OSCILLATOR OUTPUT AT DIGITAL PLL
COUT	; C BIT STATUS SIGNAL EXTRACTED FROM AES/EBU INPUT SIGNAL.
CRCA, CRCB	; OUTPUTS THE RESULT OF CHANNEL STATUS CRC CHECK OF SUBFRAME A AND B AT ERROR OCCURRING
CSAVLDTY, CSBVLDTY	; SUBFRAME A AND B CHANNEL STATUS
D0 E1A	; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")
D1 E2A	; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")
D2 E0B	; SUBFRAME B CHANNEL STATUS (CPU AUTO : "H")
D3 E1B	; SUBFRAME B CHANNEL STATUS (CPU AUTO : "H")
D4 E2B	; SUBFRAME B CHANNEL STATUS (CPU AUTO : "H")
D5 MON	; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")
D6 LN0	; SUBFRAME A/B CHANNEL STATUS (CPU AUTO : "H")
D7 LN1	; SUBFRAME A/B CHANNEL STATUS (CPU AUTO : "H")
ERROR	; ERROR INFORMATION OUTPUT (PARITY, SLIP ERROR, etc.) IN SERIAL.
FMASTER	; MASTER CLOCK OUTPUT
$\overline{INT}$	; INTERRUPTION SIGNAL OUTPUT
$\overline{NOSGNL}$	; NO SIGNAL DETECTION
$\overline{PET}$	; PARITY ERROR DETECTION OUTPUT (1 SUBFRAM)
$\overline{PES}$	; PARITY ERROR DETECTION OUTPUT (3 SUBFRAMS CONTINUOUSLY)
PLLREF	; RXDATA SYNC DETECTION
PLLVAR	; ANALOG PLL MASTER CLOCK 1/256 (2Fs) SIGNAL
RDATA	; AES/EBU INPUT SIGNAL DEMODULATED SIGNAL OUTPUT
RXBCK	; BIT CLOCK OUTPUT GENERATED FROM AES/EBU INPUT SIGNAL
RXBLKID	; BLOCK ID SIGNAL
RXLR	; REFERENCE L/R CLOCK OUTPUT (Fs PERIOD)
SLIP0, SLIP1	; DATA SLIP DETECTION
$\overline{SYNCERR}$	; SYNC ERROR DETECTION OUTPUT.
$\overline{UNLOCK}$	; DIGITAL PLL UNLOCK DETECTION OUTPUT.
UOUT	; U BIT (USER DATA BIT) STATUS SIGNAL EXTRACTED FROM RXDATA SIGNAL
$\overline{VE1A}$	; VALIDITY ERROR DETECTION OUTPUT (ONE SUBFRAM A).
$\overline{VE1B}$	; VALIDITY ERROR DETECTION OUTPUT (ONE SUBFRAM B).
VE3A	; VALIDITY ERROR DETECTION OUTPUT (3FRAMS CONTINUOUSLY FOR SUBFRAM A)
VE3B	; VALIDITY ERROR DETECTION OUTPUT (3FRAMS CONTINUOUSLY FOR SUBFRAM B)
VOUT	; V BIT (VALIDITY BIT) STATUS SIGNAL EXTRACTED FROM RXDATA SIGNAL

INPUT/OUTPUT

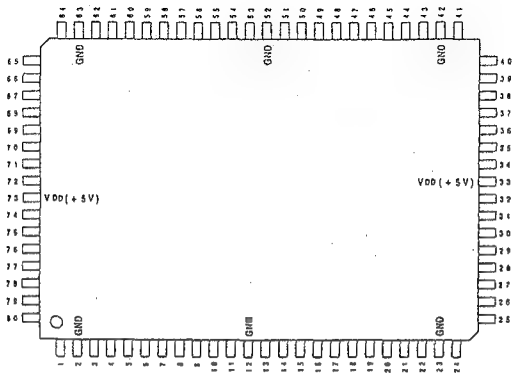
AD0 CON	; CHANNEL STATUS (CPU AUTO : "H")
AD1 N0A	; CHANNEL STATUS (CPU AUTO : "H")
AD2 FS0	; CHANNEL STATUS (CPU AUTO : "H")
AD3 FS1	; CHANNEL STATUS (CPU AUTO : "H")
AD4 FS2	; CHANNEL STATUS (CPU AUTO : "H")
AD5 E0A	; SUBFRAME A CHANNEL STATUS (CPU AUTO : "H")
F128 TS2	; OUTPUTS 128Fs OF DIGITAL PLL.
FIXDPLL	; PLLSEL : "H", DIGITAL PLL OPERATION MODE SELECTION SIGNAL ("N" : NARROW MODE, "H" : WIDE MODE)
FM12 TS4	; 1/2 MCK OUTPUT
LOCKPH0 – 5	; PLLSEL : "H", FIXDPLL : "H" OPERATION PERIOD SETTING DATA INPUT AT NARROW MODE (DIGITAL PLL MODE)
RD LN2	; SUBFRAME A/B CHANNEL STATUS (CPU AUTO ; "H")



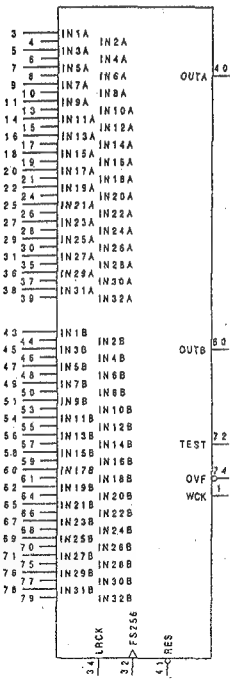
CXD8307Q (SONY) FLAT PACKAGE

DUAL 32INPUTS 32BITS MSB FIRST SERIAL ADDER

– TOP VIEW –



PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL	PIN NO.	I/O	SYMBOL
1	O	WCK	21	I	IN18A	41	I	$\overline{RES}$	61	I	IN18B
2	–	GND	22	I	IN19A	42	–	GND	62	I	IN19B
3	I	IN1A	23	–	GND	43	I	IN1B	63	–	GND
4	I	IN2A	24	I	IN20A	44	I	IN2B	64	I	IN20B
5	I	IN3A	25	I	IN21A	45	I	IN3B	65	I	IN21B
6	I	IN4A	26	I	IN22A	46	I	IN4B	66	I	IN22B
7	I	IN5A	27	I	IN23A	47	I	IN5B	67	I	IN23B
8	I	IN6A	28	I	IN24A	48	I	IN6B	68	I	IN24B
9	I	IN7A	29	I	IN25A	49	I	IN7B	69	I	IN25B
10	I	IN8A	30	I	IN26A	50	I	IN8B	70	I	IN26B
11	I	IN9A	31	I	IN27A	51	I	IN9B	71	I	IN27B
12	–	GND	32	I	FS256	52	–	GND	72	I	TEST
13	I	IN10A	33	–	VDD(+5V)	53	I	IN10B	73	–	VDD(+5V)
14	I	IN11A	34	I	LRCK	54	I	IN11B	74	O	$\overline{OVF}$
15	I	IN12A	35	I	IN28A	55	I	IN12B	75	I	IN28B
16	I	IN13A	36	I	IN29A	56	I	IN13B	76	I	IN29B
17	I	IN14A	37	I	IN30A	57	I	IN14B	77	I	IN30B
18	I	IN15A	38	I	IN31A	58	I	IN15B	78	I	IN31B
19	I	IN16A	39	I	IN32A	59	I	IN16B	79	I	IN32B
20	I	IN17A	40	O	OUTA	60	I	IN17B	80	O	OUTB



INPUT

FS256	;MASTER CLOCK(256FS)
IN1A-IN32A	;A CH DATA INPUTS(1 TO 32)
IN1B-IN32B	;B CH DATA INPUTS(1 TO 32)
LRCK	;PHASE REGULATION SIGNAL
TEST	;TEST
$\overline{RES}$	;RESET

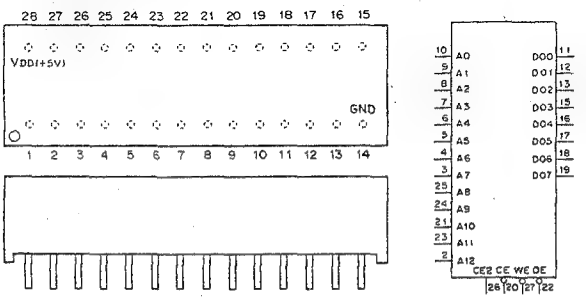
OUTPUT

OUTA	;A CH SERIAL ADDER DATA
OUTB	;B CH SERIAL ADDER DATA
WCK	;SIFT CLOCK FOR $\overline{OVF}$
$\overline{OVF}$	;OVERFLOW MONITOR(NEGATIVE PULSE)

DS1643-120 (DALLAS)

C-MOS 64K (8192×8) -BIT NONVOLATILE TIMEKEEPING S-RAM WITH REAL TIME CLOCK

– TOP/SIDE VIEW –



PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	–	NC	15	I/O	DO3
2	I	A12	16	I/O	DO4
3	I	A7	17	I/O	DO5
4	I	A6	18	I/O	DO6
5	I	A5	19	I/O	DO7
6	I	A4	20	I	$\overline{CE}$
7	I	A3	21	I	A10
8	I	A2	22	I	$\overline{OE}$
9	I	A1	23	I	A11
10	I	A0	24	I	A9
11	I/O	DO0	25	I	A8
12	I/O	DO1	26	I	CE2
13	I/O	DO2	27	I	$\overline{WE}$
14	–	GND	28	–	VDD (+5V)

INPUT

A0 – A12 ; ADDRESS INPUTS

$\overline{CE}$, CE2 ; CHIP ENABLES

$\overline{OE}$; OUTPUT ENABLE

$\overline{WE}$; WRITE ENABLE

INPUT/OUTPUT

DO0 – DO7 ; DATA INPUT/OUTPUT

TRUTH TABLE DS1643 TABLE1

VDD	$\overline{CE}$	CE2	$\overline{OE}$	$\overline{WE}$	MODE	DO	POWER
+5 V ± 10%	1	X	X	X	DESELECT	HIGH Z	STADBY
	X	0	X	X	DESELECT	HIGH Z	STADBY
	0	1	X	0	WRITE	DATA IN	ACTIVE
	0	1	0	1	READ	DATA OUT	ACTIVE
	0	1	1	1	READ	HIGH Z	ACTIVE
< +4.5 V, > V_{BAT}	X	X	X	X	DESELECT	HIGH Z	C-MOS STANDBY
< V_{BAT}	X	X	X	X	DESELECT	HIGH Z	DATA RETENTION MODE

0 ; LOW LEVEL

1 ; HIGH LEVEL

X ; DON'T CARE

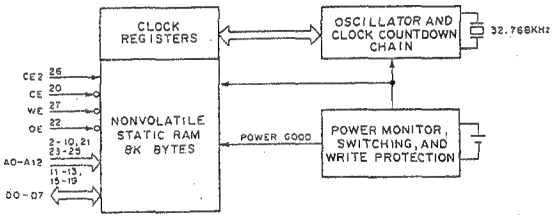
HIGH Z ; HIGH IMPEDANCE

DS1643 REGISTER MAP-BANK1 TABLE2

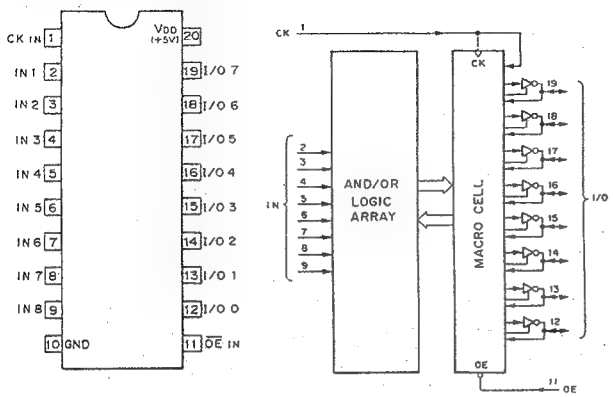
ADDRESS	DATA								FUNCTION	
	B7	B6	B5	B4	B3	B2	B1	B0		
1FFF	—	—	—	—	—	—	—	—	YEAR	00 – 99
1FFE	X	X	X	—	—	—	—	—	MONTH	01 – 12
1FFD	X	X	—	—	—	—	—	—	DATE	01 – 31
1FFC	X	FT	X	X	X	—	—	—	DAY	01 – 07
1FFB	X	X	—	—	—	—	—	—	HOUR	00 – 23
1FFA	X	—	—	—	—	—	—	—	MINUTES	00 – 59
1FF9	OSC	—	—	—	—	—	—	—	SECONDS	00 – 59
1FF8	W	R	—	—	—	—	—	—	CONTROL	A

OSC ; STOP BIT R ; READ BIT FT ; FREQUENCY TEST

W ; WRITE BIT X ; UNUSED

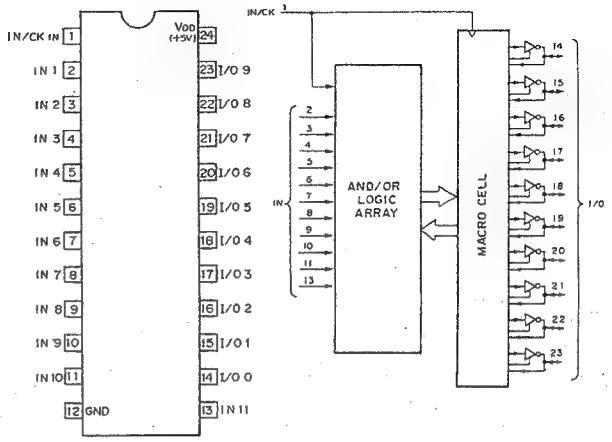


GAL16V8B-10LP (LATTICE)
GAL16V8B-7LP (LATTICE)
C-MOS ELECTRICALLY ERASABLE PROGRAMMABLE LOGIC DEVICE
– TOP VIEW –



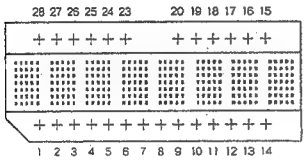
* ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

GAL22V10B-15LP (LATTICE)
C-MOS ELECTRICALLY ERASABLE PROGRAMMABLE LOGIC DEVICE
– TOP VIEW –



* ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

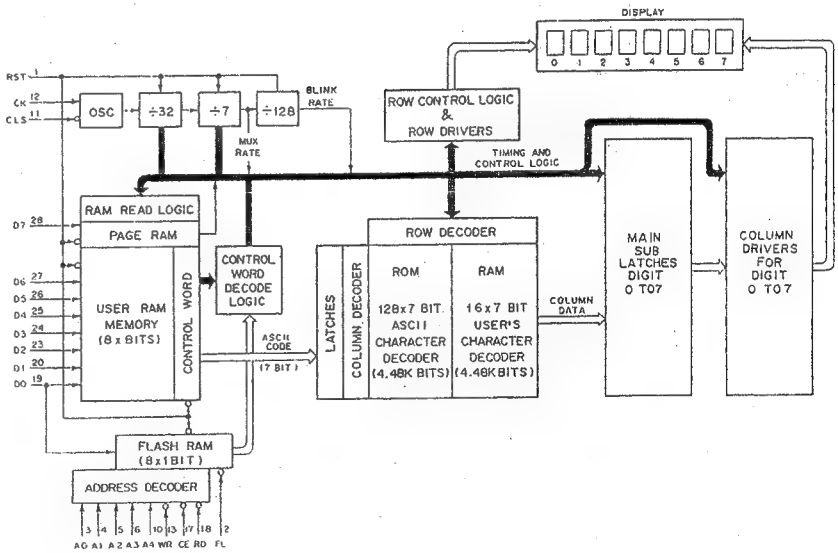
HDSP-2111 (HP) (YELLOW)
C-MOS 8-COLUMN DISPLAY (5x7-DOT) WITH DECODER AND DRIVER
– TOP VIEW –



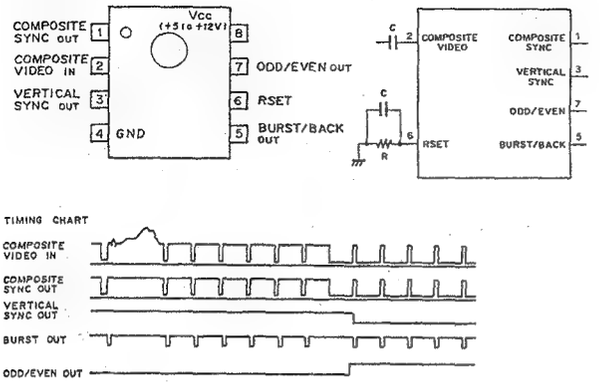
(VDD = +5V)

PIN No.	I/O	SIGNAL	PIN No.	I/O	SIGNAL
1	I	RST	15	–	GND
2	I	FL	16	–	GND
3	I	A0	17	I	CE
4	I	A1	18	I	RD
5	I	A2	19	I	D0
6	I	A3	20	I	D1
7	I	STR	21	–	–
8	I	STR	22	–	–
9	I	STR	23	I	D2
10	I	A4	24	I	D3
11	I	CLS	25	I	D4
12	I	CK	26	I	D5
13	I	WR	27	I	D6
14	–	VDD	28	I	D7

A0 – A4 ; ADDRESS INPUT
CE ; CHIP ENABLE
CK ; CLOCK
CLS ; CLOCK SELECT
D0 – D7 ; DATA INPUT
FL ; FLASH RAM
RD ; READ
RST ; RESET
STR ; SUBSTR BIAS
WR ; WRITE

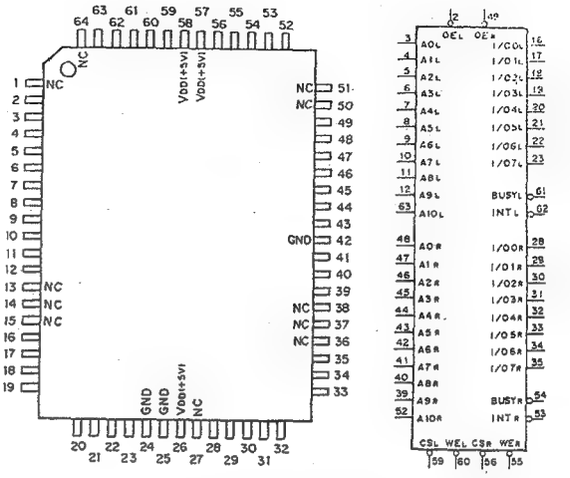


LM1881M (NS) FLAT PACKAGE
VIDEO SYNC SEPARATOR
– TOP VIEW –

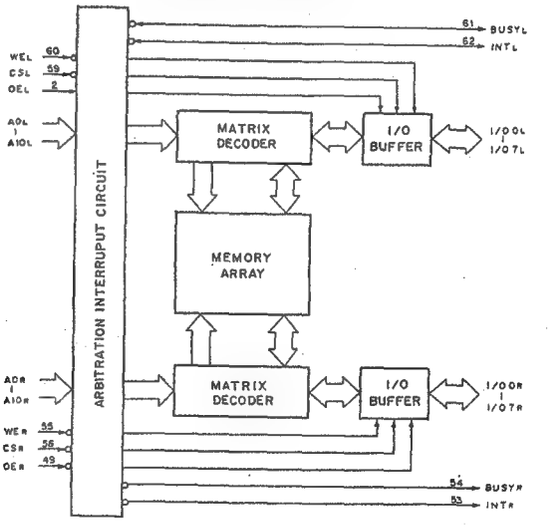


TIMING CHART

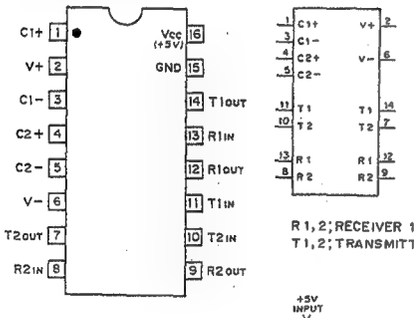
MB8421-90LPFQ (FUJITSU) (ACCESS TIME=90ns) FLAT PACKAGE
C-MOS 16384 (2Kx8) BIT DUAL PORT STATIC RAM
– TOP VIEW –



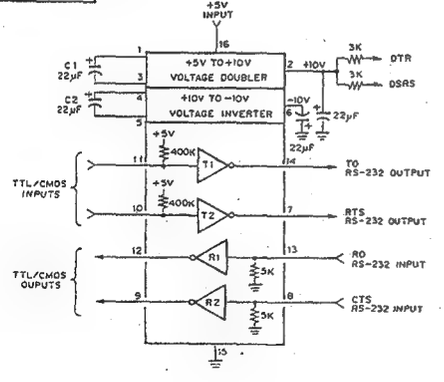
A0L – A10L, A0R – A10R : ADDRESS INPUTS
I/O0L – I/O7L, I/O0R – I/O7R : DATA INPUTS/OUTPUTS
CSL, CSR : CHIP SELECT INPUT
WEL, WER : WRITE ENABLE INPUT
OEL, OER : OUTPUT ENABLE INPUT
BUSYL, BUSYR : BUSY OUTPUT
INTL, INTR : INTERRUPT OUTPUT



MAX232CWE (MAXIM)
RS-232 TRANSMITTER/RECEIVER
– TOP VIEW –



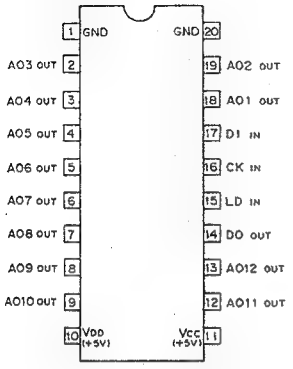
R1, 2; RECEIVER 1, 2
T1, 2; TRANSMITTER 1, 2

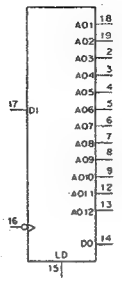


MB88346BPF (FUJITSU) FLAT PACKAGE

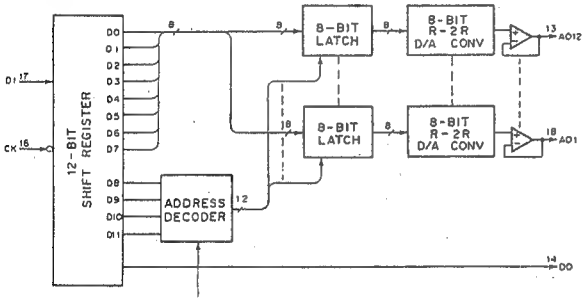
C-MOS 8-BIT D/A CONVERTER

- TOP VIEW -





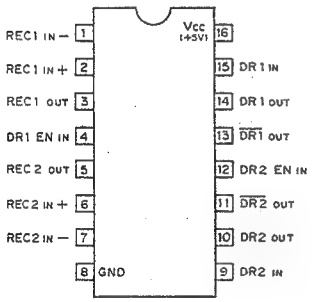
AO1 ~ AO12 : 8-BIT D/A OUTPUTS
CK : CLOCK INPUT
DI : SERIAL DATA INPUT
DO : DATA OUTPUT
LD : DATA LOAD CONTROL INPUT (H : LOAD)



MC34051M (MOTOROLA) FLAT PACKAGE

RS-422 DRIVER/RECEIVER

- TOP VIEW -

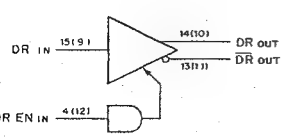


DR EN	MODE
0	DISABLE
1	ENABLE

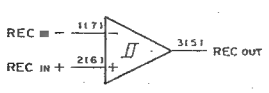
0 ; LOW LEVEL
1 ; HIGH LEVEL

DR ; DRIVER
DR EN ; DRIVER ENABLE
REC ; RECEIVER

DRIVER CIRCUIT



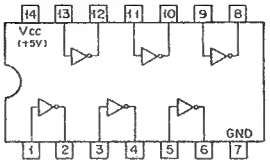
RECEIVER CIRCUIT

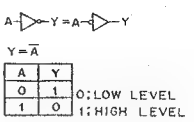


MC74F04M (MOTOROLA) FLAT PACKAGE

TTL INVERTER

- TOP VIEW -





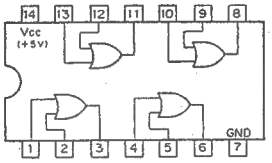
A	Y
0	1
1	0

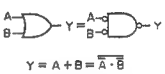
0 : LOW LEVEL
1 : HIGH LEVEL

MC74F32M (MOTOROLA) FLAT PACKAGE

TTL 2-INPUT POSITIVE-OR GATE

- TOP VIEW -





A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

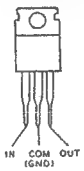
0 : LOW LEVEL
1 : HIGH LEVEL

MC7805CT (MOTOROLA) +5V

UPC7805H (NEC) +5V

POSITIVE VOLTAGE REGULATOR (1A)

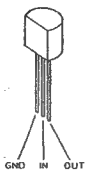
- SIDE VIEW -

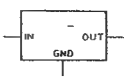


MC79L12CP (MOTOROLA) −12V

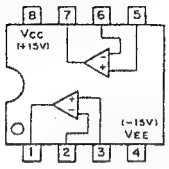
NJM79L05A (JRC) −5V

NEGATIVE VOLTAGE REGULATOR (100 mA)

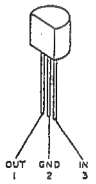


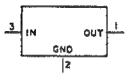


NJM5532M (JRC) FLAT PACKAGE
RC4558PS (TI) FLAT PACKAGE
RC5532M (RAYTHEON) FLAT PACKAGE
DUAL OPERATIONAL AMPLIFIER
– TOP VIEW –

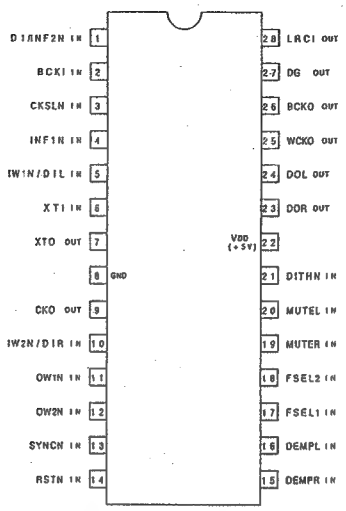


NJM78L05A (JRC) +5V (100mA)
NJM78L12A (JRC) +12V (100mA)
POSITIVE VOLTAGE REGULATOR





SM5842AP (NPC)
SM5842APT (NPC)
C-MOS 8TIMES OVER SAMPLING DIGITAL FILTER FOR DIGITAL AUDIO
– TOP VIEW –



INPUT

BCKI ;INPUT BIT CLOCK
CKSLN ;OSCILLATE AND INPUT FREQUENCY SELECT (H;384 fs, L;256 fs)
DEMPL ;Lch DEEMPHASIS SIGNAL (L;OFF, H;ON)
DEMPR ;Rch DEEMPHASIS SIGNAL (L;OFF, H;ON)
DI/INF2N;INPUT DATA (INF1N=L)/INPUT FORMAT SELECT 2 (INF1N=H)
DITHN ;DITHER ON/OFF SELECT (L;ON, H;OFF)
FSEL1 ;DEEMPHASIS FILTER SELECT 1
FSEL2 ;DEEMPHASIS FILTER SELECT 2

fs(Hz)	32k	44.1k	48k
FSEL1	H	L	L
FSEL2	H	L	H

INF1N ;INPUT FORMAT SELECT 1

	TERMINAL	INPUT FORMAT		
		LR MUTUALLY BELOW STUFFING	LR MUTUALLY ABOVE STUFFING	LR SIMULTANEOUSLY ABOVE STUFFING
SETTING	INF1N	L	H	
	INF2N	DI TERMINAL	L	H
TERMINAL FUNCTION	NO.1	DI	INF2N	
	NO.5	IW1N	DIL	
	NO.10	IW2N	DIR	

IW1N/DIL;INPUT WORD LENGTH SELECT 1 (INF1N=L)/Lch DATA INPUT (INF1N=H)
IW2N/DIR;INPUT WORD LENGTH SELECT 2 (INF1N=L)/Rch INPUT DATA (INF1N=H)

INPUT FORMAT		LR MUTUALLY BELOW STUFFING				LR MUTUALLY ABOVE STUFFING	LR SIMULTANEOUSLY ABOVE STUFFING
INPUT WORD LENGTH(BIT)		16	18	20	24	24	
5	IW1N/DIL	H	L	H	L	(USED AS DIL TERMINAL)	
10	IW2N/DIR	H	H	L	L	(USED AS DIR TERMINAL)	
4	INF1N	L				H	
1	INF2N/DI	(USED AS DI TERMINAL)				L	H

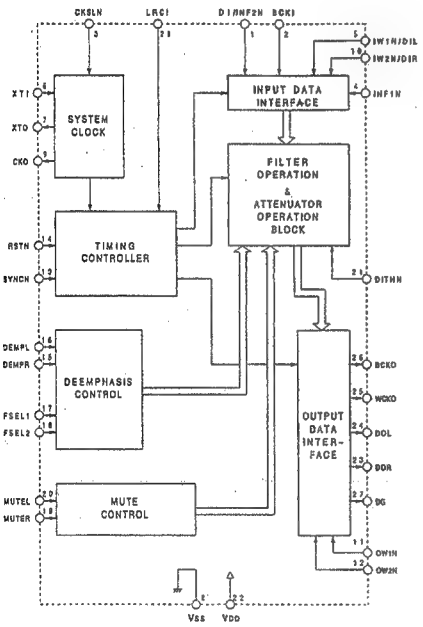
MUTEL ;MUTE SIGNAL Lch (L;NORMAL OUTPUT,H;MUTING)
MUTER ;MUTE SIGNAL Rch (L;NORMAL OUTPUT,H;MUTING)
OW1N ;OUTPUT WORD LENGTH SELECT 1
OW2N ;OUTPUT WORD LENGTH SELECT II

OUTPUT WORD LENGTH(BIT)		18	20	22	24
SETTING	OW1N	H	L	H	L
	OW2N	H	H	L	L

RSTN ;SYSTEM RESET (L;SYSTEM RESET, H;NORMAL OPERATION)
SYNCN ;SYNCHRONIZATION MODE SELECT
(L;FORCED SYNCHRONIZATION MODE, H;JITTER FREE MODE)
XTI ;OSCILLATOR INPUT TERMINAL

OUTPUT

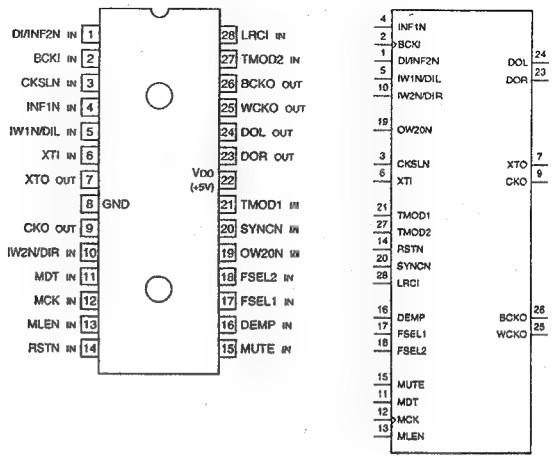
BCKO ;OUTPUT BIT CLOCK
CKO ;OSCILLATOR BLOCK OUTPUT CLOCK
DG ;DEGLITCH OUTPUT
DOL ;Lch DATA OUTPUT
DOR ;Rch DATA OUTPUT
LRCI ;INPUT DATA SAMPLING RATE(fs) CLOCK
WCKO ;OUTPUT WORD CLOCK
XTO ;OSCILLATOR OUTPUT TERMINAL



SM5843AP1 (NPC)

C-MOS AUDIO PLAYBACK DIGITAL FILTER

- TOP VIEW -



INPUT

BCKI ; INPUT BIT CLOCK
CKSLN ; INPUT FREQUENCY SELECT (H: 384fs/L: 256fs)
DEMP ; DE-EMPHASIS CONTROL (L: OFF/H: ON)
DI/INF2N ; INPUT DATA (INF1N = L)/INPUT FORMAT SELECT 2 (INF1N = H)
FSEL1, 2 ; DE-EMPHASIS SELECT

fs (Hz)		32k	44.1k	48k	TEST MODE
SETTING	FSEL1	H	L	L	H
	FSEL2	H	L	H	L

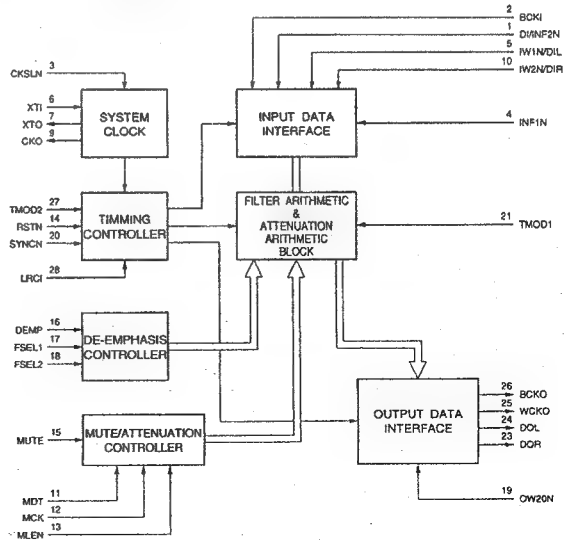
INF1N ; INPUT FORMAT SELECT 1 .
IW1N/DIL ; INPUT WORD LENGTH 1 (INF1N = L)/Lch DATA INPUT (TNF1N = H)
IW2N/DIR ; INPUT WORD LENGTH 2 (INF1N = L)/Rch DATA INPUT (TNF1N = H)
LRCI ; SAMPLE RATE CLOCK (fs)
MCK ; ATTENUATION BIT CLOCK
MDT ; ATTENUATION SERIAL DATA
MLEN ; ATTENUATION LATCH CLOCK
MUTE ; MUTE CONTROL
OW20N ; OUTPUT WORD LENGTH

OUTPUT WORD LENGTH (BIT)	18	20
OW20N	H	L

RSTN ; SYSTEM RESET (L: RESET/H: NORMAL)
SYNCN ; SYNC MODE SELECT (L: EXECUTION SYNC MODE/H: JITTER FREE MODE)
TMOD1 ; DITHER ON/OFF SELECT (L: ON/H: OFF)
TMOD2 ; FILTER CHARACTER SELECT
XTI ; OSCILLATOR INPUT

OUTPUT

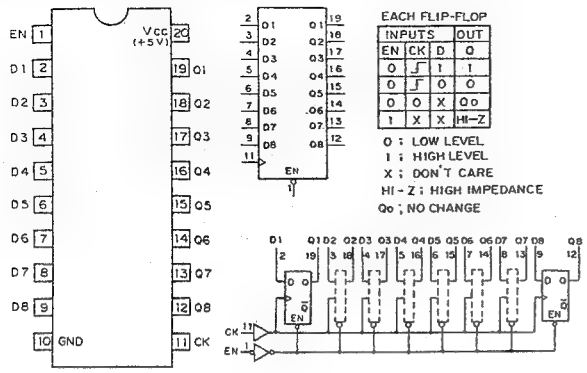
BCKO ; OUTPUT BIT CLOCK
CKO ; OSCILLATOR OUTPUT CLOCK
DOL ; Lch DATA
DOR ; Rch DATA
WCKO ; OUTPUT WORD CLOCK
XTO ; OSCILLATOR OUTPUT



SN74ALS574BNS (TI) FLAT PACKAGE

TTL 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP

– TOP VIEW –



EACH FLIP-FLOP

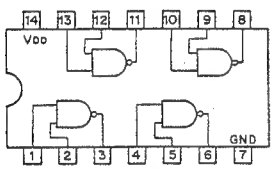
INPUTS			OUT
EN	CK	D	Q
0	↑	1	1
0	↑	0	0
0	0	X	Qo
1	X	X	HI-Z

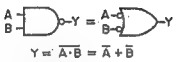
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
Qo ; NO CHANGE

SN74HC00ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NAND GATES

– TOP VIEW –





A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0;LOW LEVEL
1;HIGH LEVEL

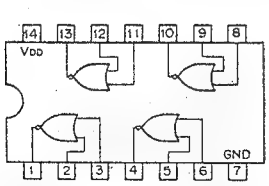
NOTE :

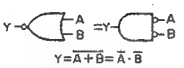
TYPE	VDD
TC74AC00 TYPE TC74VHC00	+2 to +5.5V
MC74HCT00N	+5V
74ACT00 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC02ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT NOR GATES

– TOP VIEW –





A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

NOTE :

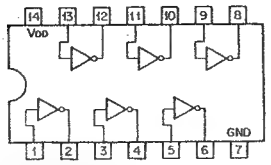
TYPE	VDD
TC74AC02F	+2 to +5.5V
74ACT02SJ TC74ACT02F	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

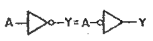
SN74HC04ANS (TI) FLAT PACKAGE

SN74HCU04ANS (TI) FLAT PACKAGE

C-MOS HEX INVERTERS

– TOP VIEW –





A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

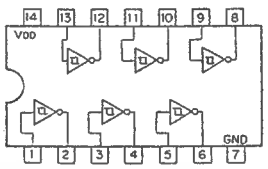
NOTE :

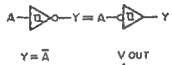
TYPE	VDD
74HCT04 TYPE	+5V
TC74AC04 TYPE TC74VHC04 TYPE	+2 to +5.5V
74ACT04 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC14ANS (TI) FLAT PACKAGE

C-MOS HEX SCHMITT TRIGGER INVERTERS

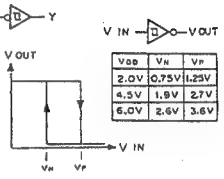
– TOP VIEW –





A	Y
0	1
1	0

0;LOW LEVEL
1;HIGH LEVEL



VDD	VN	VP
2.0V	0.75V	1.25V
4.5V	1.9V	2.7V
6.0V	2.6V	3.6V

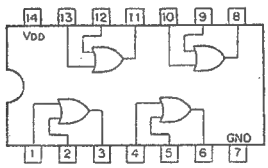
NOTE :

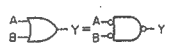
TYPE	VDD
TC74AC14 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC32ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-INPUT OR GATES

– TOP VIEW –





A	B	Y
0	0	0
0	1	1
1	0	1
1	1	1

0:LOW LEVEL
1:HIGH LEVEL

NOTE :

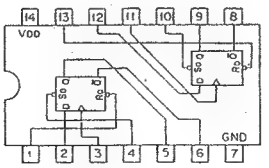
TYPE	VDD
TC74AC32 TYPE TC74VHC32	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC74ANS (TI) FLAT PACKAGE

TC74AC74F (TOSHIBA) FLAT PACKAGE

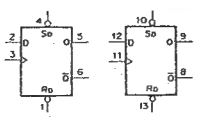
C-MOS DUAL D-TYPE FLIP-FLOPS WITH DIRECT SET/RESET

– TOP VIEW –



INPUTS				OUTPUTS	
S̄D	R̄D	CK	D	Qn+1	Q̄n+1
0	1	X	X	1	0
1	0	X	X	0	1
0	0	X	X	1	1
1	1	↑	1	1	0
1	1	↑	0	0	1
1	1	0	X	Qn	Q̄n

0;LOW LEVEL
1;HIGH LEVEL
X;DON'T CARE



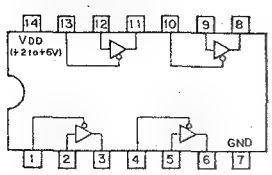
NOTE :

TYPE	VDD
TC74HCT74AF	+5V
TC74AC74 TYPE	+2 to +5.5V
74ACT74 TYPE	+4.5 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC125ANS (TI) FLAT PACKAGE

C-MOS BUS BUFFER GATES WITH 3-STATE OUTPUT

– TOP VIEW –



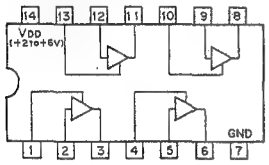
G	A	Y
0	0	0
0	1	1
1	X	HI-Z

0 ; LOW LEVEL X ; DON'T CARE
1 ; HIGH LEVEL HI-Z ; HIGH IMPEDANCE

SN74HC126ANS (TI) FLAT PACKAGE

C-MOS BUS BUFFER GATE WITH 3-STATE OUTPUT

– TOP VIEW –



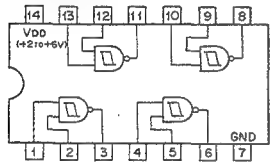
G	A	Y
1	1	1
1	0	0
0	X	HI-Z

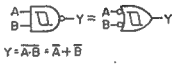
0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

SN74HC132ANS (TI) FLAT PACKAGE

C-MOS 2-INPUT NAND SCHMITT TRIGGER

– TOP VIEW –





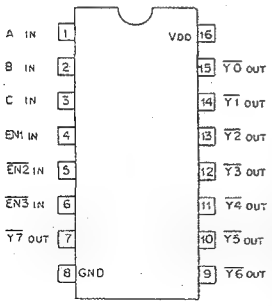
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

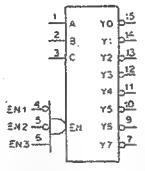
0 ; LOW LEVEL
1 ; HIGH LEVEL

SN74HC138ANS (TI) FLAT PACKAGE

C-MOS 3-TO-8 LINE DECODER/DEMULTIPLEXER

– TOP VIEW –





INPUTS				OUTPUTS							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	1	1	1	1	1	1	1	1
1	0	0	0	1	1	1	1	1	1	1	0
1	0	0	1	1	1	1	1	1	1	0	1
1	0	1	0	1	1	1	1	1	0	1	1
1	0	1	1	1	1	1	1	0	1	1	1
1	1	0	0	1	1	1	0	1	1	1	1
1	1	0	1	1	1	0	1	1	1	1	1
1	1	1	0	1	0	1	1	1	1	1	1
1	1	1	1	0	1	1	1	1	1	1	1

EN = $\overline{EN1} \cdot \overline{EN2} \cdot EN3$

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

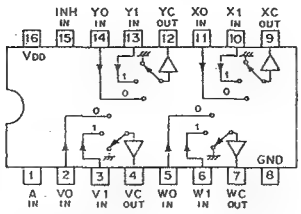
NOTE :

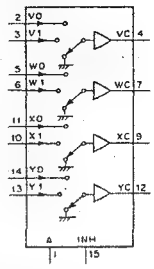
TYPE	VDD
74HCT138 TYPE	+5V
74ACT138 TYPE	+4.5 to +5.5V
TC74AC138 TYPE TC74VHC138	+2 to +5.5V
OTHER TYPES	+2 to +6V

SN74HC157ANS (TI) FLAT PACKAGE

C-MOS QUAD 2-LINE-TO-1-LINE DATA SELECTOR/MULTIPLEXER

– TOP VIEW –





NOTE :

TYPE	VDD
74ACT157	+5V
TC74AC157P TC74AC157F	+2 to +5.5V
TC40H	+2 to +8V
OTHER TYPES	+2 to +6V

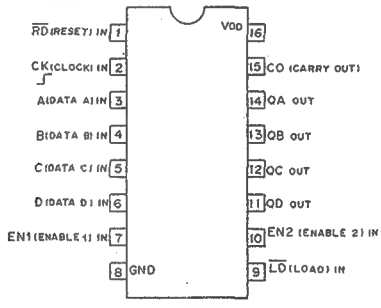
CONT. IN INH	A	ON CHANNEL
0	0	0
0	1	1
1	X	GND

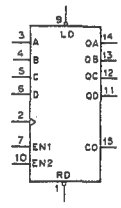
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE

SN74HC161ANS (TI) FLAT PACKAGE

C-MOS SYCHRONOUS PRESETTABLE 4-BIT BINARY COUNTER

– TOP VIEW –



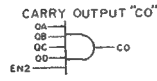


MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (ASYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CARRY OUTPUT "CO"



CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

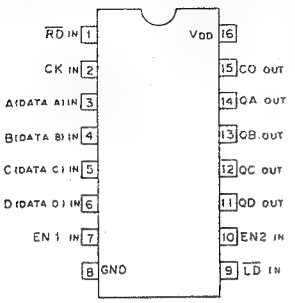
NOTE :

TYPE	VDD
74ACT	+5V
TC40H	+2 to +8V
OTHERS	+2 to +6V

COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

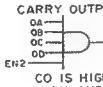
SN74HC163ANS (TI) FLAT PACKAGE
TC74AC163F (TOSHIBA) FLAT PACKAGE
C-MOS PRESETTABLE SYNCHRONOUS 4-BIT BINARY COUNTER
– TOP VIEW –



MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	EN1	EN2	
0	X	X	X	RESET (SYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

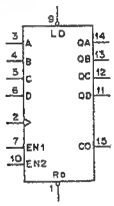
CARRY OUTPUT "CO"



CO IS HIGH WHEN EN2 INPUT IS HIGH AND COUNT IS "15".

NOTE :

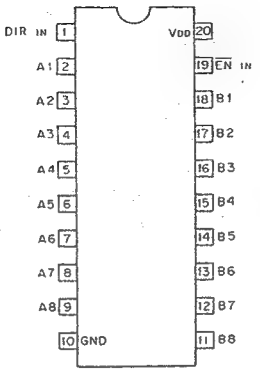
TYPE	VDD
74ACT163 TYPE IDT74FCT163 TYPE	+5V
TC74AC163 TYPE	+2 to +5.5V
OTHER TYPES	+2 to +6V

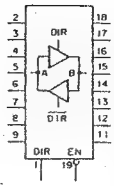


COUNT SEQUENCE

COUNT	OUTPUTS			
	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1

SN74HC245ANS (TI) FLAT PACKAGE
C-MOS BILATERAL BUS TRANSCEIVERS WITH 3-STATE OUTPUTS
– TOP VIEW –



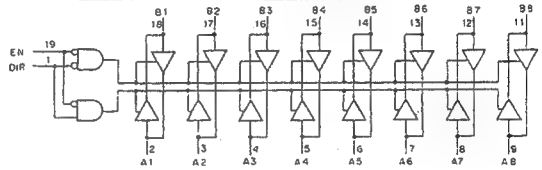


EN	DIR	OPERATION
0	0	B to A
0	1	A to B
1	X	HI-Z

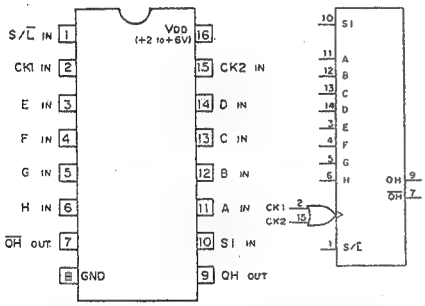
0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z : HIGH IMPEDANCE

NOTE :

TYPE	VDD
AC HC	+2 to +6V
ACT BCT HCT	+5V
TC74AC245F TC74AC245P TC74VHC245	+2 to +5.5V
74LVT	+2.7 to +3.6V



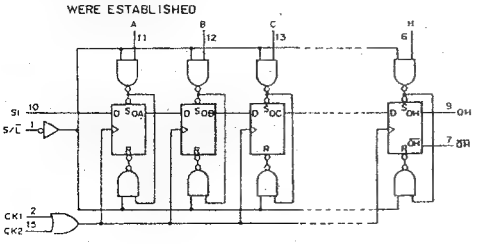
SN74HC165ANS (TI) FLAT PACKAGE
C-MOS SERIAL-OR PARALLEL-INPUT SHIFT REGISTER
– TOP VIEW –



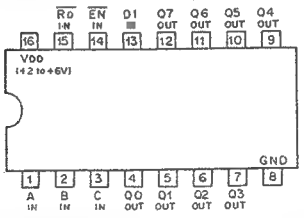
SI ; SERIAL DATA IN
A–H ; PARALLEL DATA IN
CK1,CK2 ; CLOCK IN (↓)
S/L ; SHIFT/LOAD IN
QH QH ; 8th BIT OUT (COMPLEMENTALY)

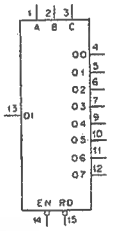
INPUTS				CONTENTS		OUTPUT	OPERATION
S/L	CK1+CK2	SI	A·····H	QA	QB····	QH	
0	X	X	a·····h	a	b·····	h	PARALLEL LOAD
1	↓	0	X	0	QAo···	QGo	RIGHT SHIFT
1	↓	1	X	1	QAo···	QGo	
1	↑	X	X	QAo	QBo···	QHo	NO COUNT
1	0	X	X	QAo	QBo···	QHo	
1	1	X	X	QAo	QBo···	QHo	

0 ; LOW LEVEL 1 ; HIGH LEVEL X ; DON'T CARE
a – h ; LEVEL OF INPUTS A–H
QAo–QHo ; LEVEL OF QA–QH BEFORE THE INDICATED INPUT CONDITIONS WERE ESTABLISHED



SN74HC259ANS (TI) FLAT PACKAGE
C-MOS 8-BIT ADDRESSABLE LATCHES
– TOP VIEW –





MODE SELECTION

CONTROL INPUTS		OUTPUT OF ADDRESSED LATCH	OUTPUT OF EACH OTHER LATCH
RD	EN		
1	0	D1	Qno
1	1	Qno	Qno
0	0	D1	0
0	1	0	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

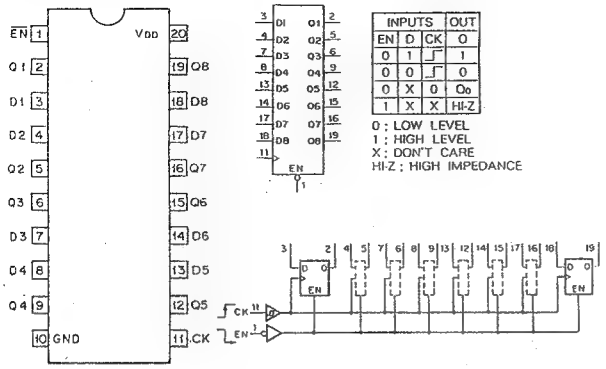
LATCH SELECTION

CONTROL INPUTS			LATCH ADDRESSED
C	B	A	
0	0	0	0
0	0	1	1
0	1	0	2
0	1	1	3
1	0	0	4
1	0	1	5
1	1	0	6
1	1	1	7

SN74HC374ANS (TI) FLAT PACKAGE

C-MOS 3-STATE OCTAL D-TYPE FLIP-FLOP

- TOP VIEW -



INPUTS			OUT
EN	D	CK	O
0	1	↑	1
0	0	↑	0
0	X	0	Q_0
1	X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

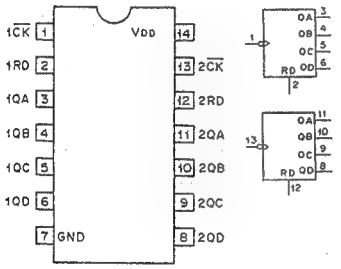
NOTE :

TYPE	VDD
74AC/74HC	+2 to +6V
74ACT/74BCT/74FCT /74HCT	+5V
74VHC	+2 to +5.5V

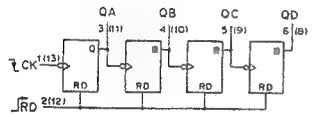
SN74HC393ANS (TI) FLAT PACKAGE

C-MOS DUAL 4-BIT BINARY COUNTER

- TOP VIEW -



COUNT	SEQUENCE			
COUNT	QD	QC	QB	QA
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
8	1	0	0	0
9	1	0	0	1
10	1	0	1	0
11	1	0	1	1
12	1	1	0	0
13	1	1	0	1
14	1	1	1	0
15	1	1	1	1



RESET/ COUNT FUNCTION				
RD	QD	QC	QB	QA
1	0	0	0	0
0	COUNT			

0 ; LOW LEVEL
1 ; HIGH LEVEL

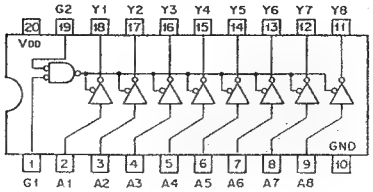
NOTE :

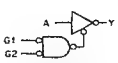
TYPE	VDD
74AC	+2 to 5.5V
74HC	+2 to 6V

SN74HC540ANS (TI) FLAT PACKAGE

C-MOS 3-STATE INVERTING BUFFER/LINE DRIVER/LINE RECEIVER

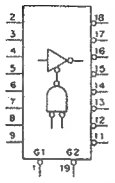
- TOP VIEW -





G1	G2	A	Y
0	0	0	1
0	0	1	0
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



NOTE :

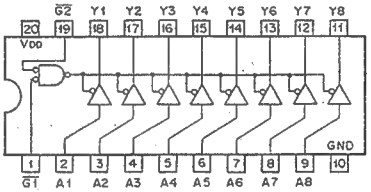
TYPE	VDD
ACT/HCT	+5V
TC74AC540 TYPE TC74VHC540	+2 to +5.5V
OTHER TYPES	+2 to +6V

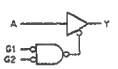
SN74HC541ANS (TI) FLAT PACKAGE

TC74AC541F (TOSHIBA) FLAT PACKAGE

C-MOS BUFFERS AND LINE DRIVERS WITH 3-STATE OUTPUTS

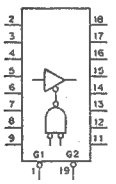
- TOP VIEW -





G1	G2	A	Y
0	0	0	0
0	0	1	1
1	X	X	HI-Z
X	1	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE



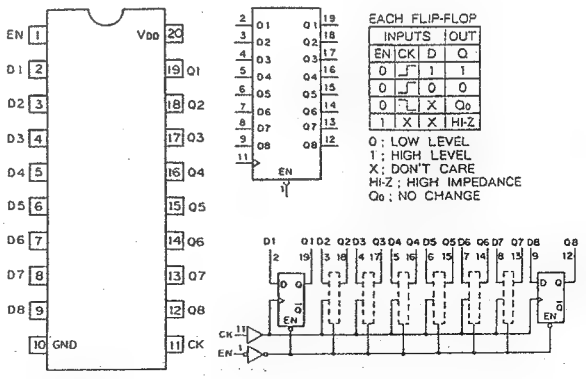
NOTE :

TYPE	VDD
AC/VHC	+2 to +5.5V
HC	+2 to +6V
ACT/BCT/HCT	+5V

SN74HC574ANS (TI) FLAT PACKAGE

C-MOS 3-STATE D-TYPE EDGE-TRIGGERED FLIP-FLOP

- TOP VIEW -



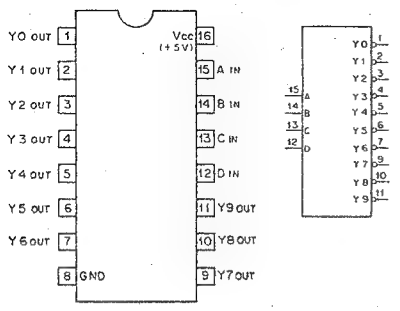
EACH FLIP-FLOP			
INPUTS			OUT
EN	CK	D	Q
0	↑	1	1
0	↑	0	0
0	↑	X	Q_0
1	X	X	HI-Z

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
Q_0 ; NO CHANGE

NOTE :

TYPE	VDD
74AC/74HC	+2 to +6V
74ACT/74FCT /74HCT	+5V
TC74AC574F TC74VHC574	+2 to +5.5V

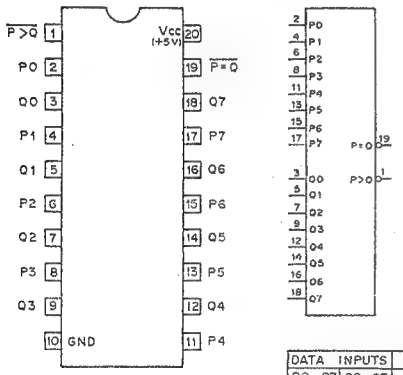
SN74LS145NS (TI) FLAT PACKAGE
TTL BCD-TO-DECIMAL DECODER/DRIVER
- TOP VIEW -



STATE	INPUTS				OUTPUTS								
	D	C	B	A	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9
0	0	0	0	0	0	1	1	1	1	1	1	1	1	1
1	0	0	0	1	1	0	1	1	1	1	1	1	1	1
2	0	0	1	0	1	1	0	1	1	1	1	1	1	1
3	0	0	1	1	1	1	1	0	1	1	1	1	1	1
4	0	1	0	0	1	1	1	1	0	1	1	1	1	1
5	0	1	0	1	1	1	1	1	1	0	1	1	1	1
6	0	1	1	0	1	1	1	1	1	1	0	1	1	1
7	0	1	1	1	1	1	1	1	1	1	1	0	1	1
8	1	0	0	0	1	1	1	1	1	1	1	1	0	1
9	1	0	0	1	1	1	1	1	1	1	1	1	1	0
INVALID	1	0	1	0	1	1	1	1	1	1	1	1	1	1
	1	0	1	1	1	1	1	1	1	1	1	1	1	1
	1	1	0	0	1	1	1	1	1	1	1	1	1	1
	1	1	0	1	1	1	1	1	1	1	1	1	1	1
	1	1	1	0	1	1	1	1	1	1	1	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

SN74LS684NS (TI) FLAT PACKAGE
TTL 8-BIT MAGNITUDE COMPARATOR
WITH TOTEM-POLE OUTPUTS
- TOP VIEW -



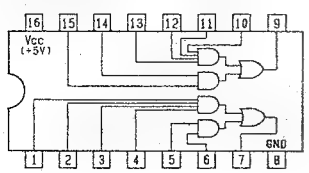
DATA INPUTS		OUTPUTS	
P0 - P7	Q0 - Q7	P=Q	P>Q
P=Q		0	1
P>Q		1	0
P<Q		1	1

1 ; HIGH LEVEL
0 ; LOW LEVEL

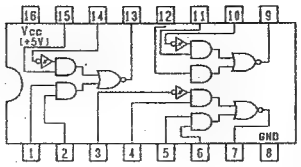
INPUT/OUTPUT CONFIGURATION

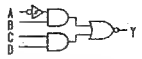
TYPE	INPUT	OUTPUT
LS682	WITH 20K-OHM	TOTEM-POLE
LS683	PULL UP	OPEN-COLLECTOR
LS684	WITHOUT	TOTEM-POLE
LS685	PULL UP	OPEN-COLLECTOR

SN75123NS (TI) FLAT PACKAGE
DUAL LINE DRIVER AND TRIPLE LINE RECEIVER
- TOP VIEW -



SN75124NS (TI)
TRIPLE LINE RECEIVER
- TOP VIEW -

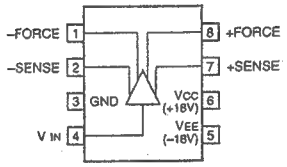




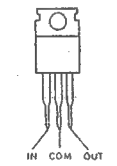
A	B	C	D	Y
X	X	1	1	0
0	1	X	X	0
1	X	0	X	1
X	0	0	X	1
1	X	X	0	1
X	0	X	0	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

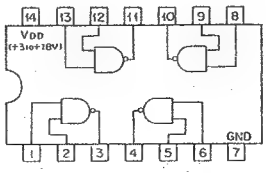
SSM-2142P (PMI)
BALANCED LINE DRIVER
- TOP VIEW -

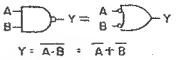


TA7805S (TOSHIBA) +5V
TA7812S (TOSHIBA) +12V
POSITIVE VOLTAGE REGULATOR (0.5A)
- SIDE VIEW -



TC4011UBP (TOSHIBA)
C-MOS 2-INPUT NAND GATE
- TOP VIEW -





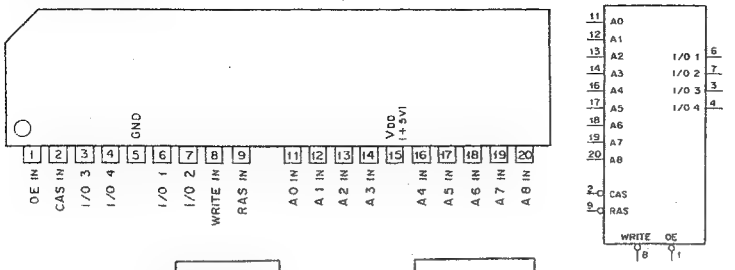
A	B	Y
0	0	1
0	1	1
1	0	1
1	1	0

0:LOW LEVEL
1:HIGH LEVEL

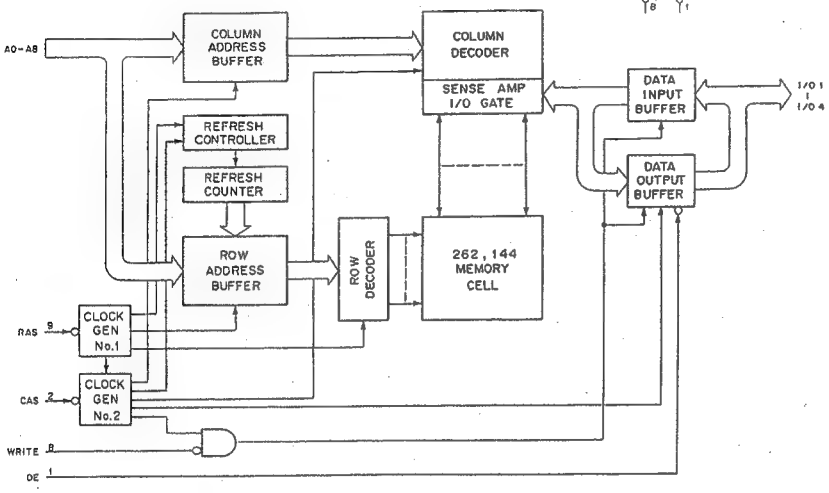
TC514256BZ-60 (TOSHIBA) (ACCESS TIME=60nS)

C-MOS 1M (262,144WORDx4) -BIT MULTIPORT DYNAMIC RAM

– TOP VIEW –



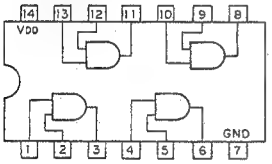
A0 – A8	: ADDRESS INPUTS
CAS	: COLUMN ADDRESS STROBE INPUT
I/O1 – I/O4	: DATA INPUTS/OUTPUTS
OE	: OUTPUT ENABLE INPUT
RAS	: ROW ADDRESS STROBE INPUT
WRITE	: READ/WRITE INPUT

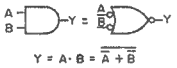


TC74AC08F (TOSHIBA) FLAT PACKAGE

C-MOS QUAD 2-INPUT AND GATES

– TOP VIEW –





A	B	Y
0	0	0
0	1	0
1	0	0
1	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL

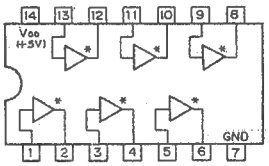
NOTE :

TYPE	VDD
TC74AC08F MC74ACT08M	+ 2 to + 5.5V
TC40H	+ 2 to + 8V
OTHER TYPES	+ 2 to + 6V

TC74HC07AF (TOSHIBA) FLAT PACKAGE

C-MOS BUFFER/DRIVER WITH OPEN-COLLECTOR

– TOP VIEW –



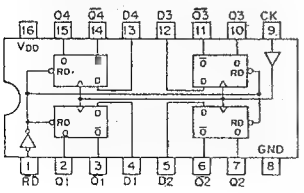
A	Y
0	0
1	*

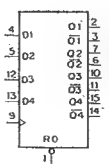
0 ; LOW LEVEL
1 ; HIGH LEVEL
* ; OPEN COLLECTOR

TC74AC175F (TOSHIBA) FLAT PACKAGE

C-MOS QUAD D-TYPE FLIP-FLOPS WITH RESET

– TOP VIEW –





RD	CK	D	Q	$\overline{Q}$
0	X	X	0	1
1	↑	1	1	0
1	↑	0	0	1
1	0	X	Q_0	$\overline{Q}_0$

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
Q_0 : NO CHANGE
$\overline{Q}_0$: NO CHANGE

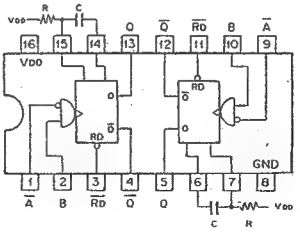
NOTE :

TYPE	VDD
AC TYPE	+2 to +5.5 V
74ACT175 TYPE	+4.5V to 5.5 V
OTHER TYPES	+2 to +6 V

TC74HC123AF (TOSHIBA) FLAT PACKAGE

C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATORS

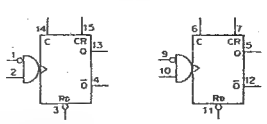
– TOP VIEW –



INPUT			OUTPUT	
$\overline{RD}$	A	B	Q	$\overline{Q}$
0	X	X	0	1
1	1	X	0	1
1	X	0	0	1
1	0	↓	↓	↓
1	↓	1	↓	↓
↓	0	1	↓	↓

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

OUTPUT PULSE WIDTH = 0.46CR



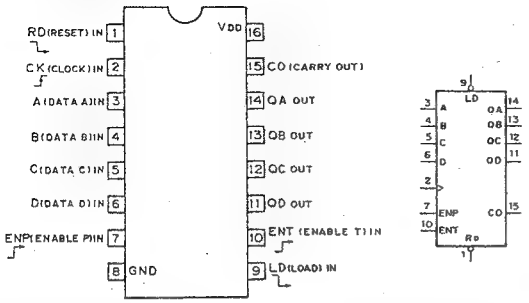
NOTE :

TYPE	VCC
TC74HCT123AF	+5V
OTHER TYPES	+2 to +6V

TC74HC160AF (TOSHIBA)

C-MOS SYCHRONOUS PRESETTABLE 4-BIT DECADE COUNTER

– TOP VIEW –



MODE SELECTION

CONTROL INPUTS				MODE
RD	LD	ENP	ENT	
0	X	X	X	RESET (ASYNCHRONOUS)
1	0	X	X	PRESET (SYNCHRONOUS)
1	1	0	X	NO COUNT
1	1	X	0	NO COUNT
1	1	1	1	COUNT

COUNT SEQUENCE

COUNT	OUTPUTS				
	QD	QC	QB	QA	CO
0	0	0	0	0	0
1	0	0	0	1	0
2	0	0	1	0	0
3	0	0	1	1	0
4	0	1	0	0	0
5	0	1	0	1	0
6	0	1	1	0	0
7	0	1	1	1	0
8	1	0	0	0	0
9	1	0	0	1	1

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

CARRY OUTPUT "CO"

CO IS HIGH WHEN ENT INPUT IS HIGH AND COUNT IS "9".

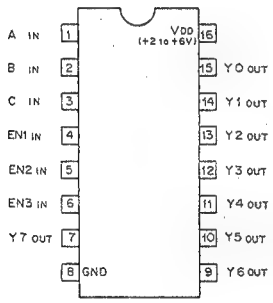
NOTE :

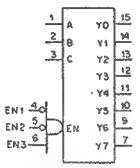
TYPE	VDD
TC40H	+ 2 to + 8V
OTHERS	+ 2 to + 6V

TC74HC238AF (TOSHIBA) FLAT PACKAGE

C-MOS 3-TO-8 LINE DECODER/DEMULTIPLEXER

– TOP VIEW –





INPUT				OUTPUT							
EN	C	B	A	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0
0	X	X	X	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	1
1	0	0	1	0	0	0	0	0	0	1	0
1	0	1	0	0	0	0	0	0	1	0	0
1	0	1	1	0	0	0	0	1	0	0	0
1	1	0	0	0	0	0	1	0	0	0	0
1	1	0	1	0	0	1	0	0	0	0	0
1	1	1	0	0	1	0	0	0	0	0	0
1	1	1	1	1	0	0	0	0	0	0	0

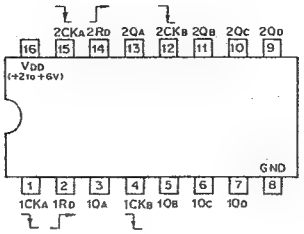
EN = $\overline{EN1} \cdot \overline{EN2} \cdot EN3$

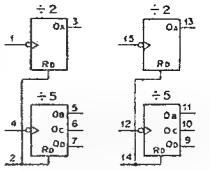
0 : LOW LEVEL
1 : HIGH LEVEL
X ; DON'T CARE

TC74HC390AF (TOSHIBA) FLAT PACKAGE

C-MOS DIVIDE-BY-2 AND DIVIDE-BY-5 COUNTER

– TOP VIEW –





COUNT SEQUENCE

÷2 SECTION

COUNT	QA
0	0
1	1

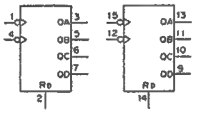
÷5 SECTION

COUNT	QD	QC	QB
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0

RESET/COUNT FUNCTION

RD	QD	QC	QB	QA
1	0	0	0	0
0	COUNT			

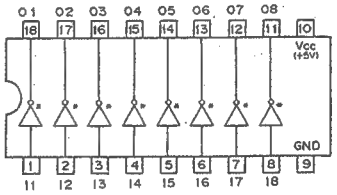
0 ; LOW LEVEL
1 ; HIGH LEVEL

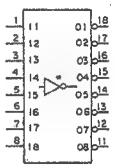


TD62381F (TOSHIBA) FLAT PACKAGE

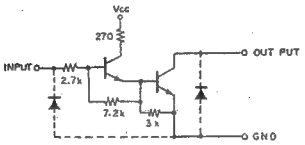
OCTAL LOW SATURATION DRIVER

– TOP VIEW –





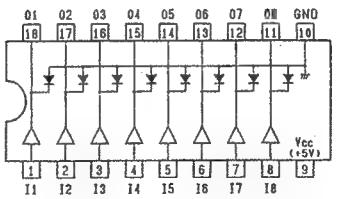
∗ ; OPEN COLLECTOR

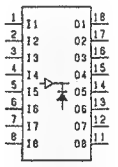


TD62783F (TOSHIBA) FLAT PACKAGE

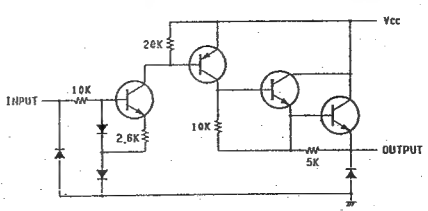
OCTAL DRIVER

– TOP VIEW –





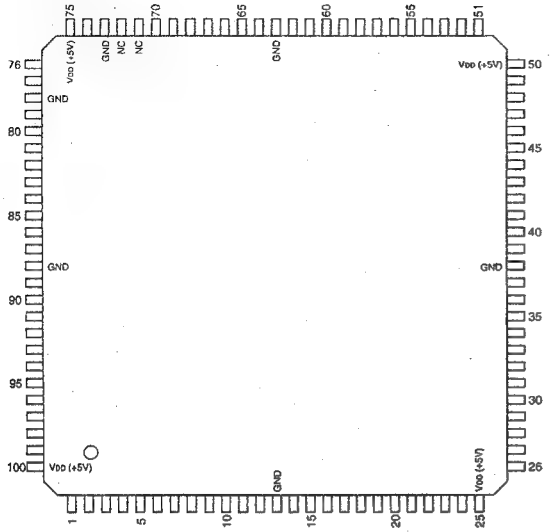
O1–O8 ; OUTPUTS
I1–I8 ; INPUTS

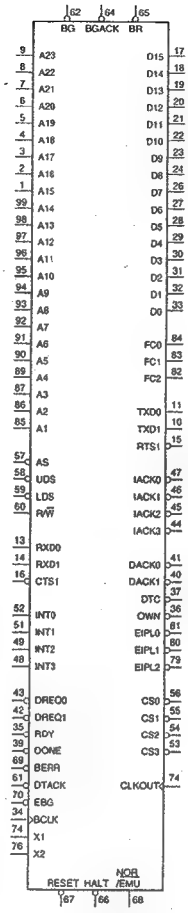


TMP68305F-16

C-MOS 16-BIT MICRO PROCESSOR

– TOP VIEW –





(VDD = +5V)

PIN No.	I/O	SIMBOL	PIN No.	I/O	SIMBOL	PIN No.	I/O	SIMBOL	PIN No.	I/O	SIMBOL
1	I/O	A15	26	I/O	D7	51	I	INT1	76	I	X2
2	I/O	A16	27	I/O	D6	52	I	INT0	77	O	X1
3	I/O	A17	28	I/O	D5	53	O	$\overline{CS3}$	78	—	GND
4	I/O	A18	29	I/O	D4	54	O	$\overline{CS2}$	79	I/O	$\overline{EIPL2}$
5	I/O	A19	30	I/O	D3	55	O	$\overline{CS1}$	80	I/O	$\overline{EIPL1}$
6	I/O	A20	31	I/O	D2	56	O	$\overline{CS0}$	81	I/O	$\overline{EIPL0}$
7	I/O	A21	32	I/O	D1	57	I/O	$\overline{AS}$	82	I/O	FC2
8	I/O	A22	33	I/O	D0	58	I/O	$\overline{UDS}$	83	I/O	FC1
9	I/O	A23	34	I	BCLK	59	I/O	$\overline{LDS}$	84	I/O	FC0
10	O	TXD0	35	I	$\overline{RDY}$	60	I/O	R/$\overline{W}$	85	I/O	A1
11	O	TXD1	36	O	$\overline{OWN}$	61	I/O	$\overline{DTACK}$	86	I/O	A2
12	I	RXD0	37	O	$\overline{DTC}$	62	O	$\overline{BG}$	87	I/O	A3
13	—	GND	38	—	GND	63	—	GND	88	—	GND
14	I	RXD1	39	I/O	$\overline{DONE}$	64	I/O	$\overline{BGACK}$	89	I/O	A4
15	O	$\overline{RTS1}$	40	O	$\overline{DACK1}$	65	I/O	$\overline{BR}$	90	I/O	A5
16	I	$\overline{CTS1}$	41	O	$\overline{DACK0}$	66	I/O	$\overline{HALT}$	91	I/O	A6
17	I/O	D15	42	I	$\overline{DREQ1}$	67	I/O	$\overline{RESET}$	92	I/O	A7
18	I/O	D14	43	I	$\overline{DREQ0}$	68	I	NOR/$\overline{EMU}$	93	I/O	A8
19	I/O	D13	44	O	$\overline{IACK3}$	69	I/O	$\overline{BERR}$	94	I/O	A9
20	I/O	D12	45	O	$\overline{IACK2}$	70	I	$\overline{EBG}$	95	I/O	A10
21	I/O	D11	46	O	$\overline{IACK1}$	71	—	NC	96	I/O	A11
22	I/O	D10	47	O	$\overline{IACK0}$	72	—	NC	97	I/O	A12
23	I/O	D9	48	I	INT3	73	—	GND	98	I/O	A13
24	I/O	D8	49	I	INT2	74	O	CLKOUT	99	I/O	A14
25	—	VDD	50	—	VDD	75	—	VDD	100	—	VDD

INPUT

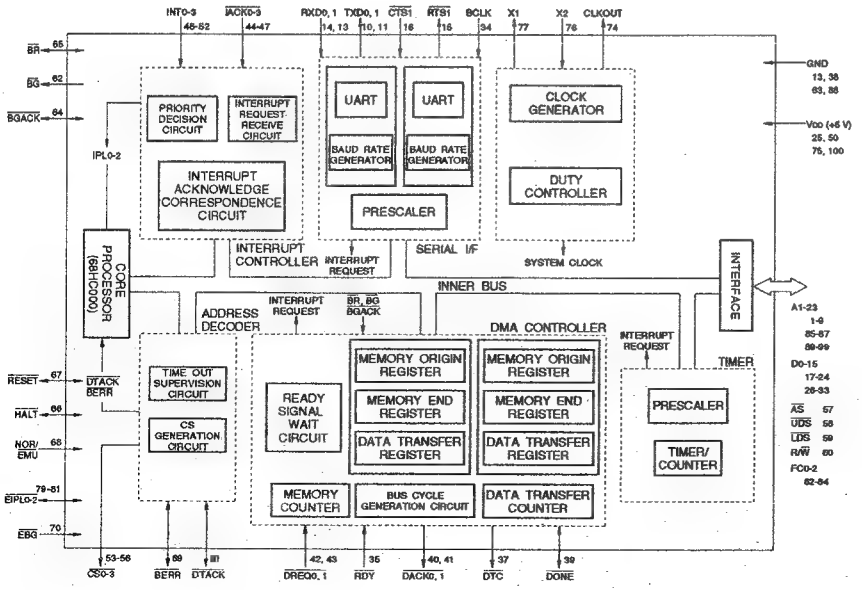
BCLK	: BAUD RATE CLOCK
$\overline{CTS1}$	: CLEAR TO SEND
DREQ0, 1	: DMA REQUESTS
$\overline{EBG}$	: EMULATION BUS GRANT
INT0-3	: INTERRUPT REQUESTS
NOR/$\overline{EMU}$	: MODE SELECT
$\overline{RDY}$	: READY
RXD0, 1	: SERIAL DATA
X2	: CRYSTAL

OUTPUT

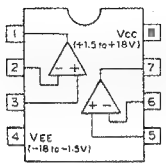
$\overline{BG}$	: BUS GRANT
CLKOUT	: SYSTEM CLOCK
$\overline{CS0-3}$	: CHIP SELECTS
$\overline{DACK0, 1}$	: DMA ACKNOWLEDGE
$\overline{DTC}$	: DATA TRANSFER COMPLETE
$\overline{IACK0-3}$	: INTERRUPT ACKNOWLEDGE
$\overline{OWN}$	: THIS SIGNAL INDICATES THAT INTERNAL DMA CONTROLLER IS BUS MASTER.
$\overline{RTS1}$	: REQUEST TO SEND
TXD0, 1	: SERIAL DATA
X1	: CRYSTAL

INPUT/OUTPUT

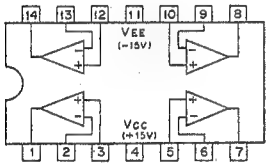
A1-23	: ADDRESS BUS
$\overline{AS}$	: ADDRESS STROBE
$\overline{BERR}$	: BUS ERROR
$\overline{BGACK}$	: BUS GRANT ACKNOWLEDGE
$\overline{BR}$	: BUS REQUEST
D0-15	: DATA BUS
$\overline{DTACK}$	: DATA TRANSFER ACKNOWLEDGE
$\overline{DONE}$	: DMA FORBIDDANCE/FORCED END/ TRANSFER END
$\overline{EIPL0-2}$	: EMULATION INTERRUPT CONTROL
$\overline{FC0-2}$	: FUNCTION CORDS
$\overline{HALT}$	: HALT
$\overline{LDS}$	: LOWER DATA STROBE
$\overline{RESET}$	: RESET
R/$\overline{W}$	: READ/WRITE
$\overline{UDS}$	: UPPER DATA STROBE



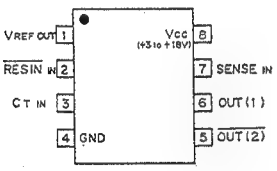
TL082CPS (TI) FLAT PACKAGE
TL082M (TI)
OPERATIONAL AMPLIFIER
(JFET INPUT)
- TOP VIEW -

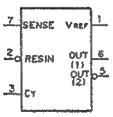


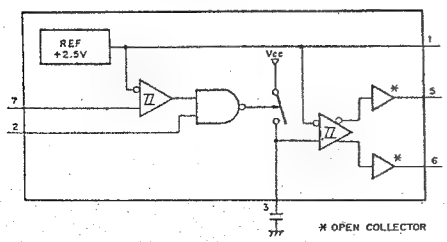
TL084CNS (TI) FLAT PACKAGE
OPERATIONAL AMPLIFIER
(JFET-INPUT)
- TOP VIEW -



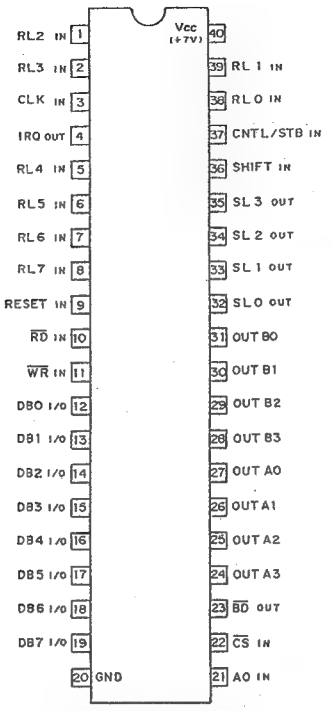
TL7705ACPS (TI) FLAT PACKAGE
POWER VOLTAGE SUPERVISOR
- TOP VIEW -



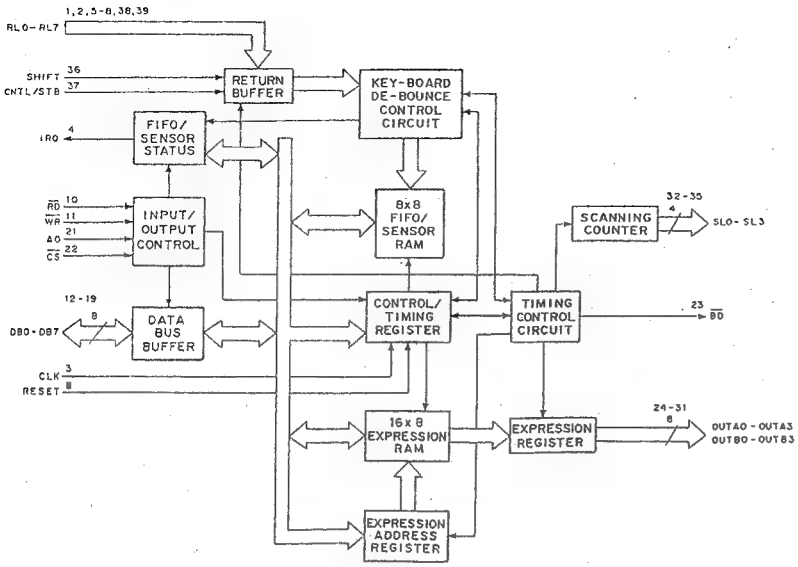




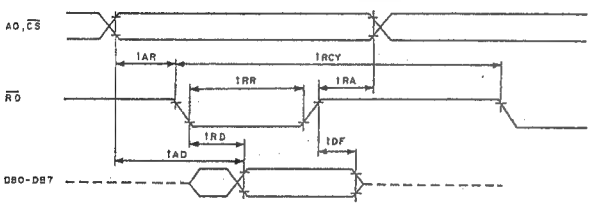
TMP82C79M-2 (TOSHIBA) FLAT PACKAGE
C-MOS PROGRAMABLE KEY-BOARD/DISPLAY INTERFACE DEVICE
- TOP VIEW -



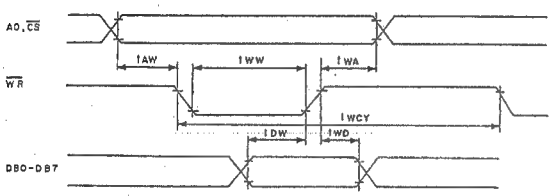

```
      A0 ; COMMAND/DATA CONTROL INPUT
      BD ; DISPLAY BLANKING OUTPUT
     CLK ; CLOCK INPUT
 CNTL/STB ; CONTROL/STROBE INPUT
      CS ; CHIP SELECT INPUT
 DB0-DB7 ; DATA BUS INPUT/OUTPUT
     IRQ ; INTERRUPT REQUEST OUTPUT
OUT A0-A3 ; 16x4 BIT EXPRESSION REFRESH REGISTER
OUT B0-B3
      RD ; READ STROBE INPUT
   RESET ; RESET INPUT
RL0-RL7 ; RETURN LINE INPUT
   SHIFT ; SHIFT INPUT
SL0-SL3 ; SCANNING LINE OUTPUT
      WR ; WRITE STROBE INPUT
```



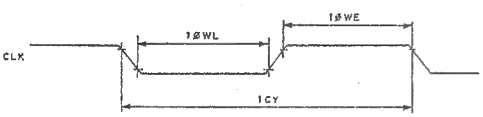
READ



WRITE

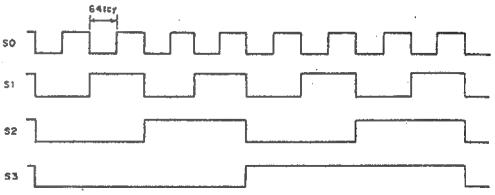


CLOCK

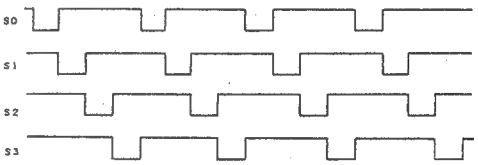


SCANNING

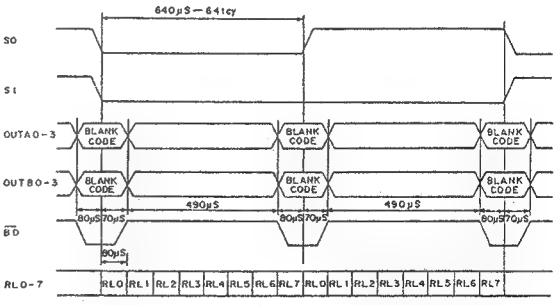
ENCODE



DECODE



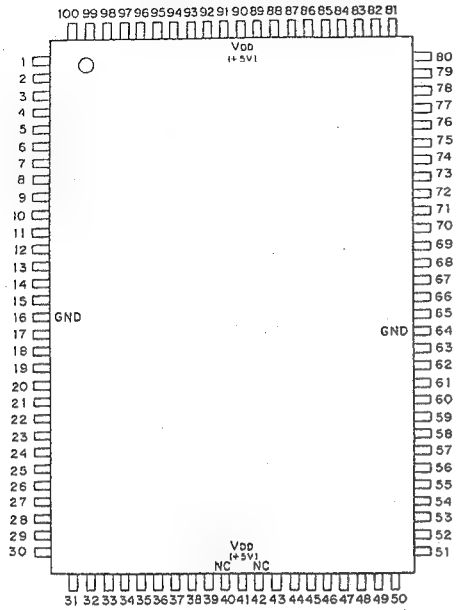
EXPRESSION



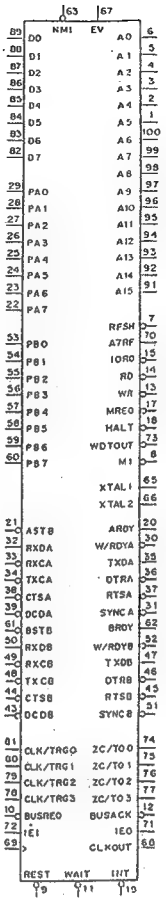
TMPZ84C015BF-6 (TOSHIBA) FLAT PACKAGE

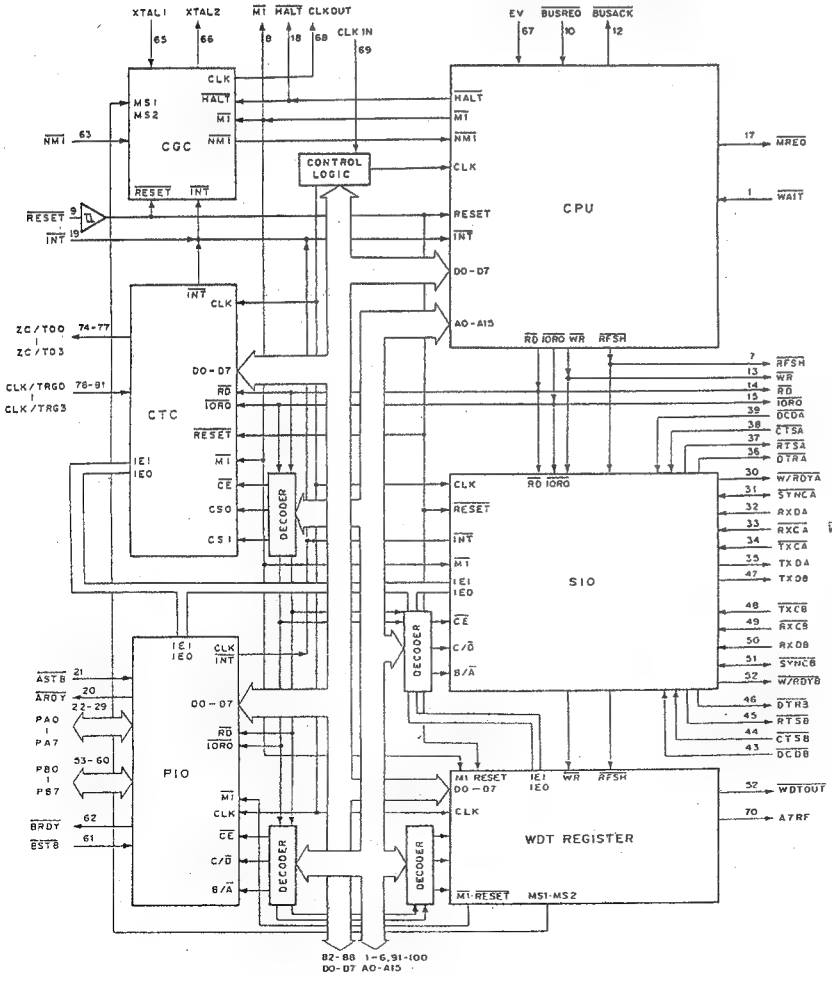
C-MOS 8-BIT MICROPROCCESSOR

– TOP VIEW –



NO.	IN	OUT	SYMBOL	NO.	IN	OUT	SYMBOL
1		O	A5	51	O	O	SYNCB
2		O	A4	52		O	W/RDYB
3		O	A3	53	O	O	PB0
4		O	A2	54	O	O	PB1
5		O	A1	55	O	O	PB2
6		O	A0	56	O	O	PB3
7		O	RFSH	57	O	O	PB4
8		O	M1	58	O	O	PB5
9	O		REST	59	O	O	PB6
10	O		BUSREQ	60	O	O	PB7
11	O		WAIT	61	O		BSTB
12		O	BUSACK	62		O	BRDY
13		O	WR	63	O		NMI
14		O	RD	64			GND
15		O	IORQ	65	O		XTAL1
16			GND	66		O	XTAL2
17		O	MREQ	67	O		EV
18		O	HALT	68		O	CLKOUT
19	O		INT	69	O		CLKIN
20		O	ARDY	70		O	A7RF
21	O		ASTB	71		O	IEO
22	O	O	PA7	72	O		IEI
23	O	O	PA6	73		O	WDTOUT
24	O	O	PA5	74		O	ZC/TO0
25	O	O	PA4	75		O	ZC/TO1
26	O	O	PA3	76		O	ZC/TO2
27	O	O	PA2	77		O	ZC/TO3
28	O	O	PA1	78	O		CLK/TRG3
29	O	O	PA0	79	O		CLK/TRG2
30		O	W/RDYA	80	O		CLK/TRG1
31	O	O	SYNCA	81	O		CLK/TRG0
32	O		RXDA	82	O	O	D7
33	O		RXCA	83	O	O	D6
34	O		TXCA	84	O	O	D5
35		O	TXDA	85	O	O	D4
36		O	DTRA	86	O	O	D3
37		O	RTSA	87	O	O	D2
38	O		CTSA	88	O	O	D1
39	O		DCDA	89	O	O	D0
40			NC	90			VDD
41			VDD	91		O	A15
42			NC	92		O	A14
43	O		DCDB	93		O	A13
44	O		CTSB	94		O	A12
45		O	RTSB	95		O	A11
46		O	DTRB	96		O	A10
47		O	TXDB	97		O	A9
48	O		TXCB	98		O	A8
49	O		RXCB	99		O	A7
50	O		RXDB	100		O	A6



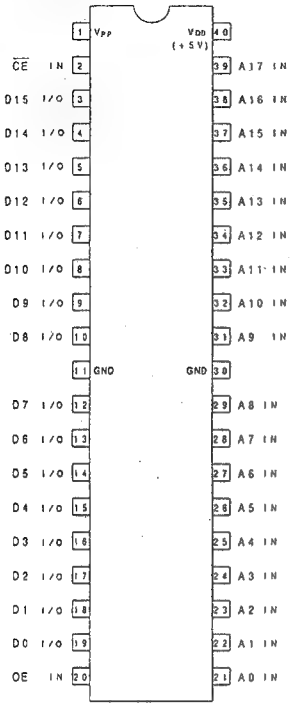


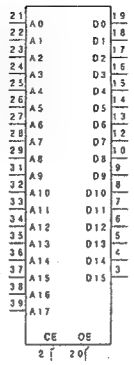
A0–A15 ; 3-STATE ADDRESS BUS OUTPUTS.
BUSACK ; BUS ACKNOWLEDGE OUTPUT
BUSREQ ; BUS REQUEST INPUT
CLK/TRIG0-3 ; EXTERNAL CLOCK/TIMER TRIGGER 0-3 INPUTS
D0-D7 ; 3-STATE DATA BUS INPUTS/OUTPUTS
EV ; EVALUATER INPUT
HALT ; HALT OUTPUT
IEI/IEO ; CTC INTERRUPT ENABLE INPUT/OUTPUT
INT ; MASKABLE INTERRUPT REQUEST/INPUT
IORQ ; 3-STATE I/O REQUEST OUTPUT
M1 ; 3-STATE MACHINE CYCLE 1 OUTPUT
MREQ ; 3-STATE MEMORY REQUEST OUTPUT
NMI ; NON-MASKABLE INTERRUPT REQUEST INPUT
PA0-PA7, PB0-PB7 ; 3-STATE I/O PORT
RD ; 3-STATE READ OUTPUT
REST ; RESET INPUT
RFSH ; REFRESH OUTPUT
WAIT ; WAIT REQUEST INPUT
WR ; 3-STATE WRITE OUTPUT
2C/TO0-3 ; ZERO COUNT/TIME OUT 0-3 OUTPUTS
ASTB ; PORT A STROBE PULSE INPUT
ARDY ; REGISTER A READY OUTPUT
BSTB ; PORT B STROBE PULSE INPUT
BRDY ; REGISTER B READY OUTPUT
SYNCA, SYNCB ; SYNC INPUT/OUTPUT
W/RADYA, W/RADYB ; WAIT/READY OUTPUT
RXDA, RXDB ; SERIAL DATA INPUT
RXCA, RXCB ; RECEIVE CLOCK INPUT
TXCA, TXCB ; TRANSMISSION CLOCK INPUT
TXDA, TXDB ; SERIAL DATA OUTPUT
DTRA, DTRB ; DATA TERMINAL READY OUTPUT
RTSA, RTSB ; TRANSMISSION REQUEST OUTPUT
CTSA, CTSB ; TRANSMISSION ENABLE INPUT
DCDA, DCDB ; DATA CARRIER DETECT OUTPUT
WDTOUT ; WATCH DOG TIMER OUTPUT

TMS27C240-12JL (TI)

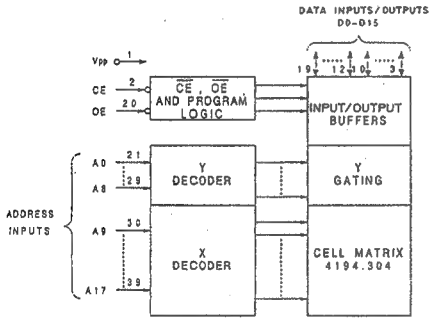
C-MOS 4M (262K×16)-BIT UV EPROM

– TOP VIEW –





A0 – A17 ; ADDRESS INPUTS
CE ; CHIP ENABLE
D0 – D15 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE
VPP ; PROGRAMMING VOLTAGE (PROGRAM : 13.0V)



ABOVE DIAGRAM SHOWS CONDITIONS BEFORE PROGRAMMING.

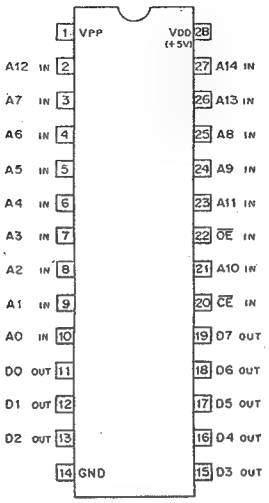
CE	OE	VPP	VDD	A9	A0	D0 – D15	FUNCTION
0	0	VDD	VDD	×	×	DOUT	READ
0	1	VDD	VDD	×	×	HI-Z	OUTPUT DISABLE
0	1	VPP	VDD	×	×	DIN	PROGRAMMING
1	0	VPP	VDD	×	×	DOUT	VERIFY
1	1	VPP	VDD	×	×	HI-Z	PROGRAM INHIBIT
1	×	VDD	VDD	×	×	HI-Z	STANDBY
0	0	VDD	VDD	VH	0	97 (MAKER CODE)	SIGNATURE MODE
				VH	1	30 (DEVICE CODE)	

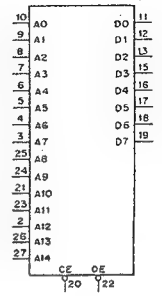
1 ; HIGH LEVEL
0 ; LOW LEVEL
× ; DON'T CARE
HI-Z ; HIGH IMPEDANCE
VH ; 12.0 ± 0.5 V

TMS27C256-12JL (TI)

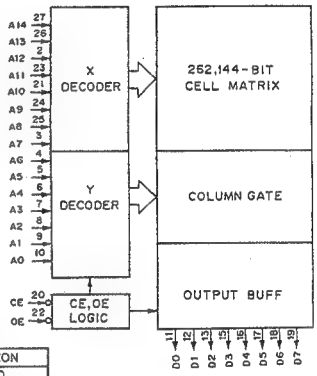
C-MOS 256K (32K×8) -BIT ERASABLE PROM WITH 3-STATE OUTPUTS

– TOP VIEW –





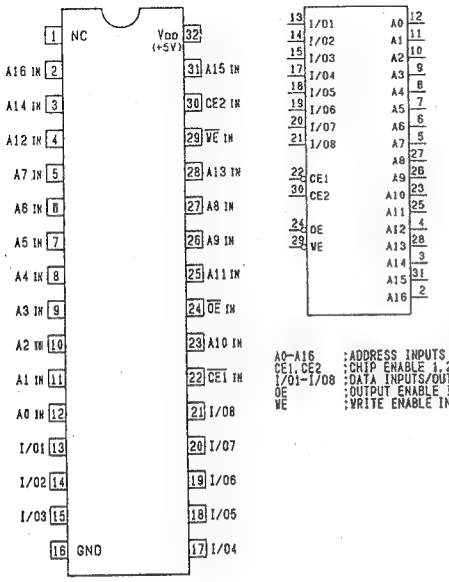
A0 – A14 ; ADDRESS INPUT
CE ; CHIP ENABLE INPUT
D0 – D7 ; DATA OUTPUT
OE ; OUTPUT ENABLE INPUT
VPP ; PROGRAM POWER SUPPLY



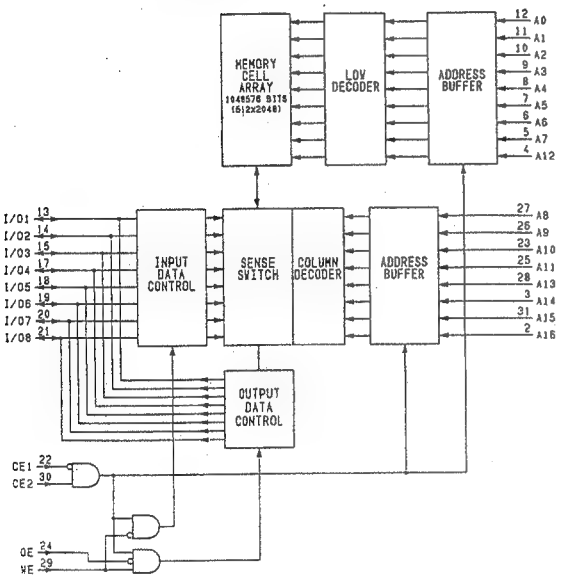
An	CE	OE	VPP	Dn	FUNCTION
An	0	0	+ 5V	DOUT	READ
An	0	1	+ 5V	HI-Z	OUTPUT DISABLE
X	1	X	+ 5V	HI-Z	STANDBY
An	0	1	+ 21V	DIN	PGM
An	0	0	+ 21V	DOUT	PGM VERIFY
X	1	1	+ 21V	HI-Z	PGM INH

0 : LOW LEVEL
1 : HIGH LEVEL
X : DON'T CARE
HI-Z ; HIGH IMPEDANCE

UPD431000AGW-70L (NEC) FLAT PACKAGE
C-MOS 1M (128k×8)-BIT STATIC RAM
– TOP VIEW –



A0–A16 ; ADDRESS INPUTS
CE1, CE2 ; CHIP ENABLE 1, 2 INPUTS
I/O1–I/O8 ; DATA INPUTS/OUTPUTS
OE ; OUTPUT ENABLE INPUT
WE ; WRITE ENABLE INPUT

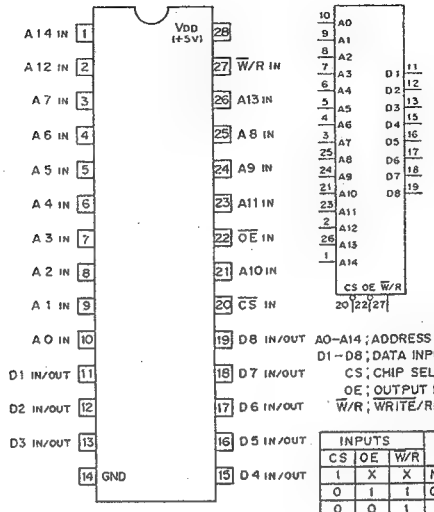


MODE :

CE1	CE2	OE	WE	MODE	DATA OUTPUT
1	X	X	X	NO SELECTION (POWER DOWN)	HI-Z
X	0	X	X		
0	1	1	1	OUTPUT DISABLE	
0	1	0	1	READ	D OUT
0	1	X	0	WRITE	D IN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE
HI-Z ; HIGH IMPEDANCE

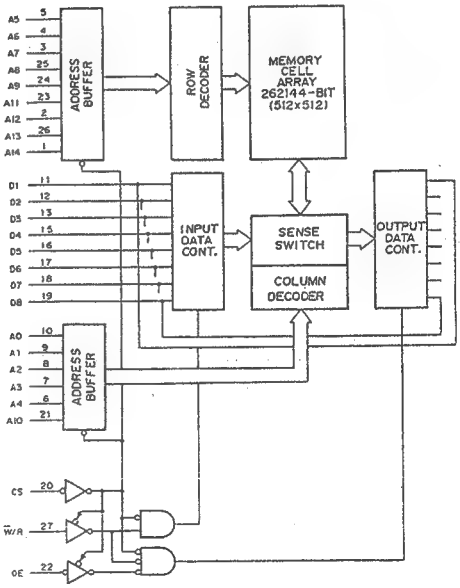
UPD43256AGU-10L (NEC) FLAT PACKAGE
UPD43256AGU-10LL (NEC)
C-MOS 262144-BIT (32768×8) STATIC RAM
– TOP VIEW –



A0–A14 ; ADDRESS INPUTS
D1–D8 ; DATA INPUTS/OUTPUTS
CS ; CHIP SELECT INPUT
OE ; OUTPUT ENABLE INPUT
W/R ; WRITE/READ INPUT

INPUTS			MODE	OUTPUT STATUS
CS	OE	W/R		
1	X	X	NO SELECTION	HI-Z
0	1	1	OUTPUT DISABLE	
0	0	1	READ	D OUT
0	X	0	WRITE	D IN

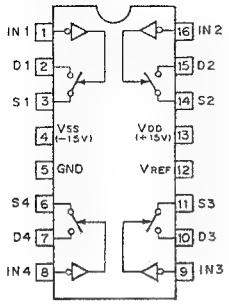
0 ; LOW LEVEL X ; DON'T CARE
1 ; HIGH LEVEL HI-Z ; HIGH IMPEDANCE

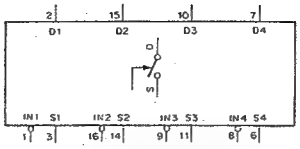


UPD5201C (NEC)

C-MOS QUAD SPST ANALOG SWITCH

- TOP VIEW -





IN	SWITCH
0	ON
1	OFF

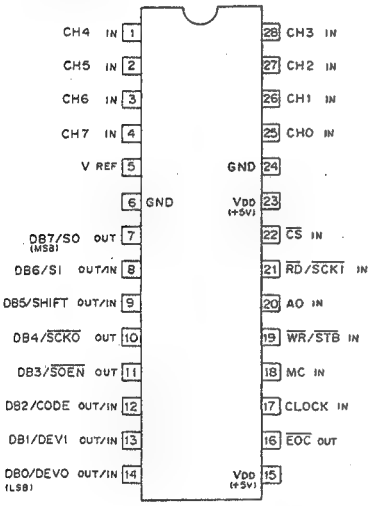
0 : LOW LEVEL
1 : HIGH LEVEL

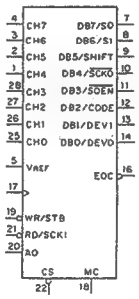
D1~D4 : DRAIN
S1~S4 : SOURCE
SPST : SINGLE-POLE, SINGLE-THROW

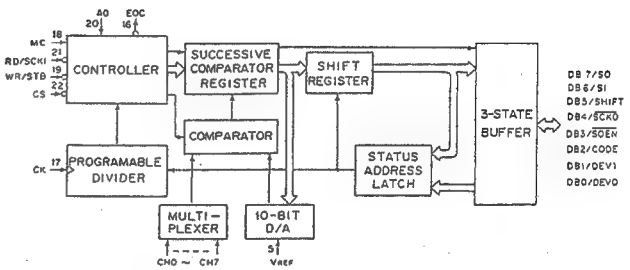
UPD7004C (NEC)

C-MOS 10-BIT SUCCESSIVE COMPARATOR TYPE A/D CONVERTER

- TOP VIEW -







AO ; CONTROL ADDRESS INPUT
CH0~7 ; ANALOG INPUT
CODE ; CODE SELECT (2'S COMPLEMENT/ BINARY) INPUT
CS ; CHIP SELECT INPUT
DB0~7 ; DATA BUS INPUT/OUTPUT
DEVO, DEV1 ; CLOCK RATE SELECT INPUT
EOC ; CONVERSION ENDING SIGNAL OUTPUT
MC ; MODE SELECT INPUT
RD ; READ SIGNAL INPUT
SCKI ; SERIAL CLOCK INPUT
SCKO ; SERIAL CLOCK OUTPUT
SHIFT ; SHIFT SELECT (LSB FIRST/ MSB FIRST)
SI ; SERIAL INPUT
SO ; SERIAL OUTPUT
SOEN ; SERIAL OUTPUT ENABLE OUTPUT
STB ; ADDRESS WRITE STROBE SIGNAL INPUT
WR ; WRITE SIGNAL INPUT

MC	MODE
0	SERIAL
1	PARALLEL

PARALLEL MODE

$\overline{CS}$	$\overline{WR}$	$\overline{RD}$	AO	MODE
1	X	X	X	HIGH IMPEDANCE
0	1	1	X	HIGH IMPEDANCE
0	0	1	0	*1 ANALOG CHANNEL SELECT
0	0	1	1	*2 CODE SELECT/ *3 CLOCK RATE SELECT
0	1	0	0	*4 LOW-BYTE DATA OUTPUT
0	1	0	1	*4 HIGH-BYTE DATA OUTPUT
0	0	0	X	INHIBIT

0 ; LOW LEVEL X : DON'T CARE
1 ; HIGH LEVEL

*1 ANALOG CHANNEL

SEL2	SEL1	SEL0	MPX CHAN.
0	0	0	CH0
0	0	1	CH1
0	1	0	CH2
0	1	1	CH3
1	0	0	CH4
1	0	1	CH5
1	1	0	CH6
1	1	1	CH7

*2 CODE SELECT

CODE	CODE SELECT
0	BINARY DATA
1	2'S COMPLEMENT DATA

*3 CLOCK RATE SELECT

DEV1	DEV0	CLOCK RATE
0	0	1
0	1	1/2
1	0	1/4
1	1	1/8

*4 LOW/HIGH-BYTE DATA

	DB7	DB6	DB5	DB4	DB3	DB2	DB1	DB0
HIGH-BYTE	MSB	2ND	3RD	4TH	5TH	6TH	7TH	8TH
LOW-BYTE	9TH	0	0	0	0	0	0	0

SECTION 6
SPARE PARTS

6-1. 補修用部品注意事項

(1) 安全重要部品

回路図、分解図、電気部品表中、⚠印の部品は安全性を維持するために重要な部品です。従ってこれらの部品を交換するときには必ず指定の部品と交換して下さい。

(2) 部品の共通化

ソニーから供給される部品はセットに実装されているものと異なることがあります。これは部品の共通化、改良等によるものです。
分解図や電気部品表には現時点での共通化された部品が記載されています。

(3) 部品の在庫

部品表のSP (Supply code) 欄にoで示される部品は交換頻度が低い部品ですので在庫していないことがあり、納期が長くなることがあります。

(4) コンデンサ、インダクタ、抵抗の単位

回路図、分解図、電気部品表中、特に明記したものを除き、下記の単位は省略されています。

コンデンサ　：μF
インダクタ　：μH
抵抗　　：Ω

6-1. NOTES ON SPARE PARTS

(1) Safety Related Components Warning

Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation.
Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts

Repair parts supplied from Sony Parts Center may not be always identical with the parts which actually in use due to "accommodating the improved parts and/or engineering changes" or "standarzation of genuine parts".
This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

(3) Stock of Parts

Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Units for Capacitors, Inductors and Resistors

The following units are assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.

Capacitors : μF
Inductors : μH
Resistors : Ω

6-2. EXPLODED VIEWS

• INDEX

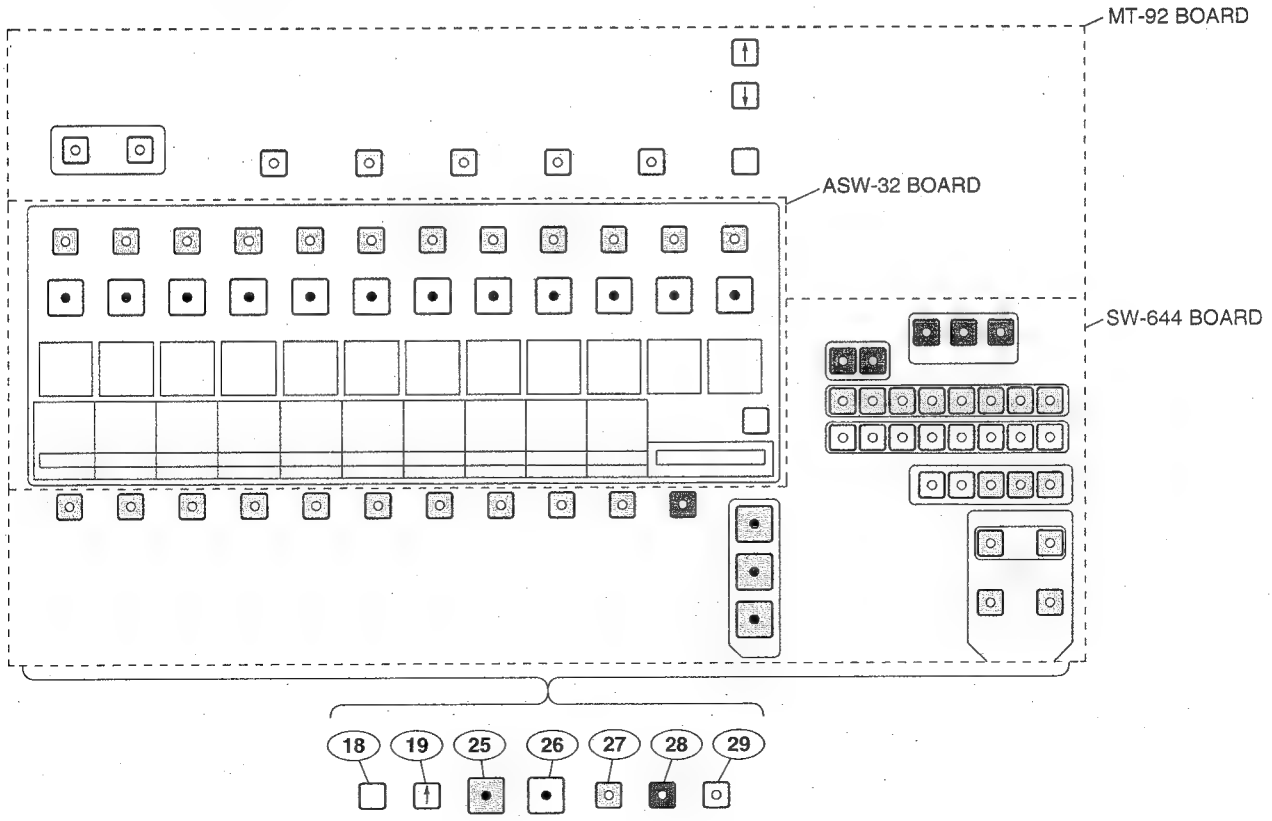
Page

(1) CONTROL PANEL BLOCK 6-2

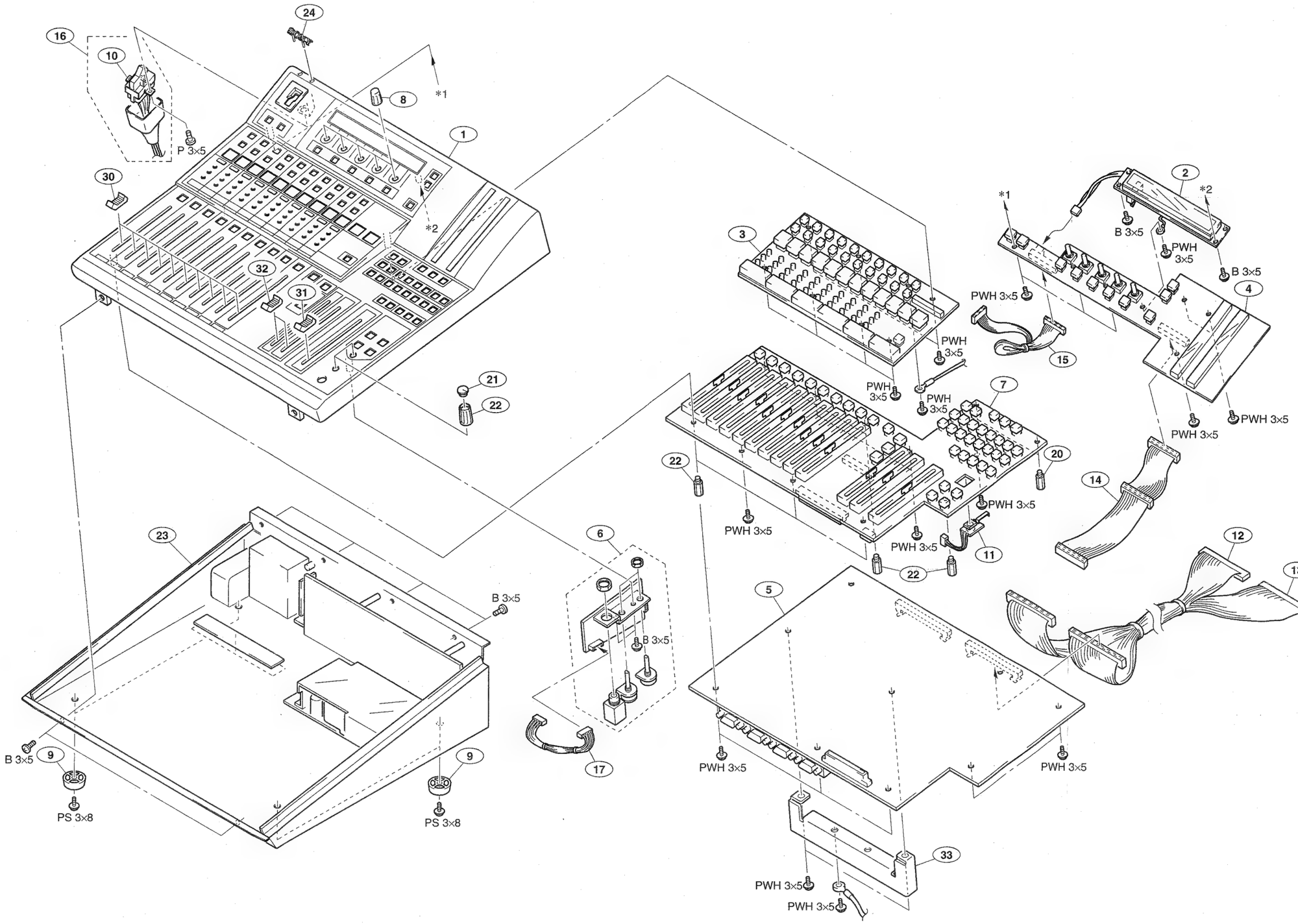
(2) REAR PANEL BLOCK.....6-4

No.	Part No.	SP	Description
1	A-8267-897-A	o	SUB ASSY, CONTROL PANEL
2	A-8267-927-A	s	LCD ASSY
3	A-8275-498-A	o	MOUNTED CIRCUIT BOARD, ASW-32
4	A-8275-499-A	o	MOUNTED CIRCUIT BOARD, MT-92
5	A-8275-500-A	o	MOUNTED CIRCUIT BOARD, MIX-17
6	A-8275-501-A	o	MOUNTED CIRCUIT BOARD, VR-174
7	A-8275-504-A	o	MOUNTED CIRCUIT BOARD, SW-644
8	X-3167-051-1	s	KNOB ASSY, BOLUME
9	X-3556-910-0	s	FOOT ASSY, MF
10	⚠ 1-570-744-21	s	SWITCH, AC POWER
11	1-609-885-00	o	PRINTED CIRCUIT BOARD , MIC
12	1-952-927-11	o	HARNESS, MIX1
13	1-952-928-11	o	HARNESS, MIX2
14	1-952-929-11	o	HARNESS, INSIDE BUS
15	1-952-930-11	o	HARNESS, MT-LCD
16	⚠ 1-952-931-12	o	HARNESS, P/S 1
17	1-952-933-11	o	HARNESS, SW-VR
18	2-140-311-05	s	KEY TOP
19	2-140-311-07	s	KEY TOP
20	3-180-281-01	o	SUPPORT, PCB
21	3-180-426-01	s	KNOB CAP (Fai 13)
22	3-180-434-01	s	KNOB (Fai 13)
23	3-183-513-02	o	CASE
24	4-908-848-31	s	EMBLEM, SONY
25	4-927-278-01	s	KEY TOP
26	4-927-278-41	s	KEY TOP
27	4-928-315-01	s	KEY TOP
28	4-928-315-31	s	KEY TOP
29	4-928-315-71	s	KEY TOP
30	4-937-102-01	s	KNOB, FADER
31	4-937-102-11	s	KNOB, FADER
32	4-937-102-21	s	KNOB, FADER
33	Pending	o	BLACKET

KEY TOP

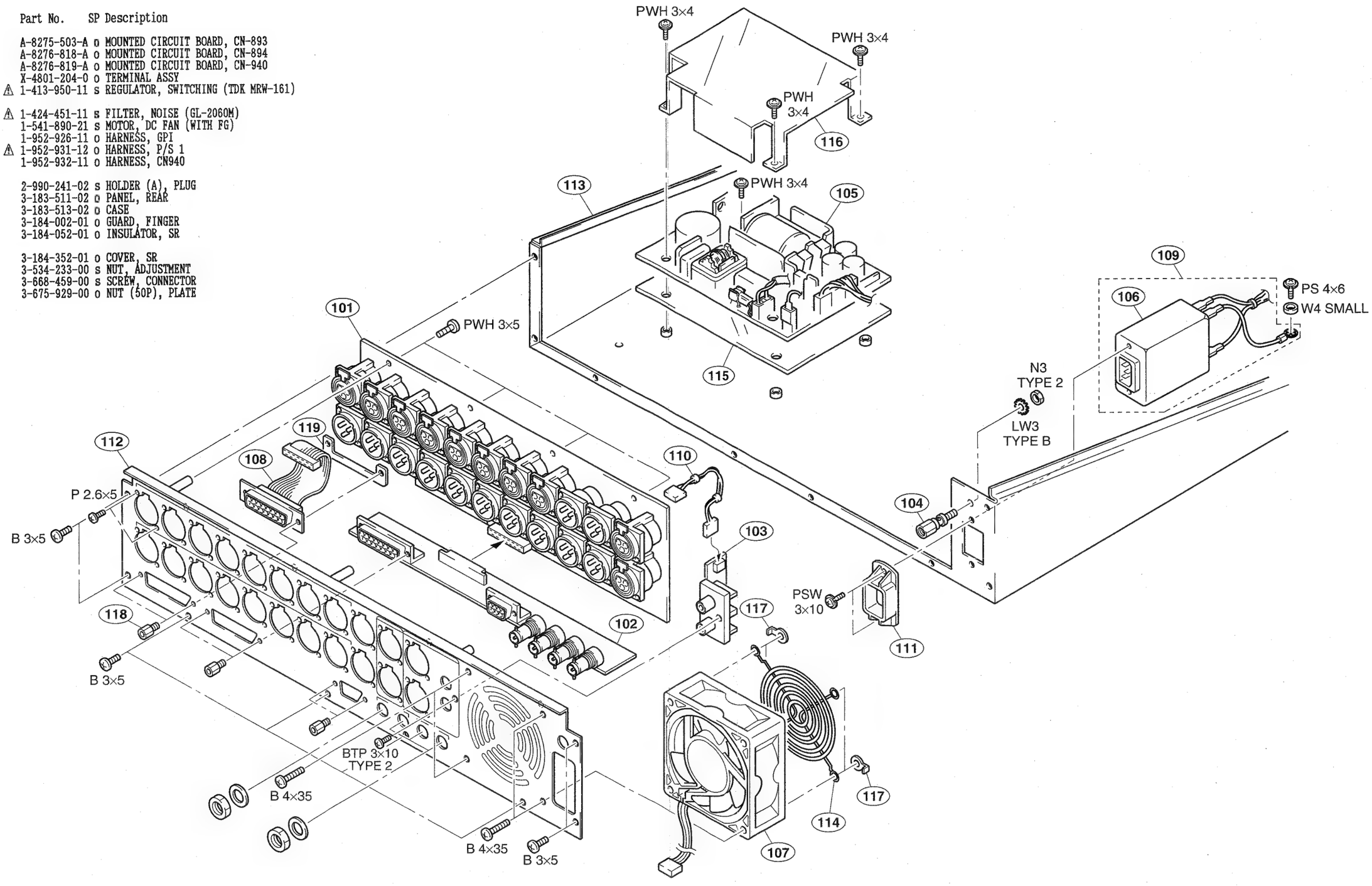


CONTROL PANEL BLOCK



REAR PANEL BLOCK

No.	Part No.	SP	Description
101	A-8275-503-A	o	MOUNTED CIRCUIT BOARD, CN-893
102	A-8276-818-A	o	MOUNTED CIRCUIT BOARD, CN-894
103	A-8276-819-A	o	MOUNTED CIRCUIT BOARD, CN-940
104	X-4801-204-0	o	TERMINAL ASSY
105 ⚠	1-413-950-11	s	REGULATOR, SWITCHING (TDK MRW-161)
106 ⚠	1-424-451-11	s	FILTER, NOISE (GL-2060M)
107	1-541-890-21	s	MOTOR, DC FAN (WITH FG)
108	1-952-926-11	o	HARNESS, GPI
109 ⚠	1-952-931-12	o	HARNESS, P/S 1
110	1-952-932-11	o	HARNESS, CN940
111	2-990-241-02	s	HOLDER (A), PLUG
112	3-183-511-02	o	PANEL, REAR
113	3-183-513-02	o	CASE
114	3-184-002-01	o	GUARD, FINGER
115	3-184-052-01	o	INSULATOR, SR
116	3-184-352-01	o	COVER, SR
117	3-534-233-00	s	NUT, ADJUSTMENT
118	3-668-459-00	s	SCREW, CONNECTOR
119	3-675-929-00	o	NUT (50P), PLATE



6-3. ELECTRICAL PARTS LIST

NOTE : For the # marked in the following parts list,
refer to Section 7 "CHANGED PARTS".

CAPACITOR, CHIP CERAMIC

Part No.	SP	Description			
1-163-239-11	s	CAP, CHIP CERAMIC	33PF	5%	50V
1-163-243-11	s	CAP, CHIP CERAMIC	47PF	5%	50V
1-163-251-11	s	CAP, CHIP CERAMIC	100PF	5%	50V
1-163-037-11	s	CAP, CHIP CERAMIC	0.022	10%	25V
1-163-989-11	s	CAP, CHIP CERAMIC	0.033	10%	25V
1-164-004-11	s	CAP, CHIP CERAMIC	0.1	10%	25V
1-163-038-00	s	CAP, CHIP CERAMIC	0.1		50V
1-164-489-11	s	CAP, CHIP CERAMIC	0.22	10%	16V

CAPACITOR, ELECTROLYTIC

Part No.	SP	Description			
1-126-966-11	s	CAP, ELECT	33	20%	50V
1-126-947-11	s	CAP, ELECT	47	20%	35V
1-126-933-11	s	CAP, ELECT	100	20%	16V
1-126-948-11	s	CAP, ELECT	100	20%	35V
1-126-924-11	s	CAP, ELECT	330	20%	10V
1-126-940-11	s	CAP, ELECT	330	20%	25V
1-126-941-11	s	CAP, ELECT	470	20%	25V

RESISTOR, CHIP

Part No.	SP	Description			
1-216-295-00	s	RES, CHIP	0	5%	1/10W
1-216-025-00	s	RES, CHIP	100	5%	1/10W
1-216-031-00	s	RES, CHIP	180	5%	1/10W
1-216-033-00	s	RES, CHIP	220	5%	1/10W
1-216-037-00	s	RES, CHIP	330	5%	1/10W
1-216-041-00	s	RES, CHIP	470	5%	1/10W
1-216-043-00	s	RES, CHIP	560	5%	1/10W
1-216-049-00	s	RES, CHIP	1k	5%	1/10W
1-216-057-00	s	RES, CHIP	2.2k	5%	1/10W
1-216-065-00	s	RES, CHIP	4.7k	5%	1/10W
1-216-073-00	s	RES, CHIP	10k	5%	1/10W
1-216-089-91	s	RES, CHIP	47K	5%	1/10W
1-216-097-00	s	RES, CHIP	100k	5%	1/10W
1-216-105-00	s	RES, CHIP	220K	5%	1/10W
1-216-113-00	s	RES, CHIP	470K	5%	1/10W
1-216-121-00	s	RES, CHIP	1.0M	5%	1/10W

ASW-32 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-498-A	o	MOUNTED CIRCUIT BOARD, ASW-32
1pc	2-140-311-05	s	KEY TOP
30pcs	2-358-583-01	o	HOLDER, LED
1pc	3-708-563-01	o	CAP
10pcs	4-927-278-41	s	KEY TOP
10pcs	4-928-315-01	s	KEY TOP
CN200	1-565-429-11	o	CONNECTOR, 34P, MALE
CNI200	1-526-659-00	o	SOCKET, IC 28P
CNI201	1-526-659-00	o	SOCKET, IC 28P
CNI202	1-526-659-00	o	SOCKET, IC 28P
CNI203	1-526-659-00	o	SOCKET, IC 28P
CNI204	1-526-659-00	o	SOCKET, IC 28P
CNI205	1-526-659-00	o	SOCKET, IC 28P
D200	8-719-801-78	s	DIODE 1SS184
D201	8-719-801-78	s	DIODE 1SS184
D202	8-719-801-78	s	DIODE 1SS184
D203	8-719-801-78	s	DIODE 1SS184
D204	8-719-801-78	s	DIODE 1SS184
D205	8-719-801-78	s	DIODE 1SS184
D207	8-719-801-78	s	DIODE 1SS184
D208	8-719-801-78	s	DIODE 1SS184
D209	8-719-801-78	s	DIODE 1SS184
D210	8-719-801-78	s	DIODE 1SS184
D211	8-719-801-78	s	DIODE 1SS184
D212	8-719-801-78	s	DIODE 1SS184
D213	8-719-801-78	s	DIODE 1SS184
D214	8-719-801-78	s	DIODE 1SS184
D215	8-719-801-78	s	DIODE 1SS184
D216	8-719-801-78	s	DIODE 1SS184
D217	8-719-801-78	s	DIODE 1SS184
D218	8-719-027-90	s	DIODE SEL4814D
D219	8-719-027-90	s	DIODE SEL4814D
D220	8-719-027-90	s	DIODE SEL4814D
D221	8-719-027-90	s	DIODE SEL4814D
D222	8-719-027-90	s	DIODE SEL4814D
D223	8-719-027-90	s	DIODE SEL4814D
D224	8-719-027-90	s	DIODE SEL4814D
D225	8-719-027-90	s	DIODE SEL4814D
D226	8-719-027-90	s	DIODE SEL4814D
D227	8-719-027-90	s	DIODE SEL4814D
D228	8-719-027-90	s	DIODE SEL4814D
D229	8-719-027-90	s	DIODE SEL4814D
D230	8-719-027-90	s	DIODE SEL4814D
D231	8-719-027-90	s	DIODE SEL4814D
D232	8-719-027-90	s	DIODE SEL4814D
D233	8-719-027-90	s	DIODE SEL4814D
D234	8-719-027-90	s	DIODE SEL4814D
D235	8-719-027-90	s	DIODE SEL4814D
D236	8-719-027-90	s	DIODE SEL4814D
D237	8-719-027-90	s	DIODE SEL4814D
D238	8-719-027-90	s	DIODE SEL4814D
D239	8-719-027-90	s	DIODE SEL4814D
D240	8-719-027-90	s	DIODE SEL4814D
D241	8-719-027-90	s	DIODE SEL4814D
D242	8-719-027-90	s	DIODE SEL4814D
D243	8-719-027-90	s	DIODE SEL4814D
D244	8-719-027-90	s	DIODE SEL4814D

(ASW-32 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D245	8-719-027-90	s	DIODE SEL4814D
D246	8-719-027-90	s	DIODE SEL4814D
D247	8-719-027-90	s	DIODE SEL4814D
IC200	8-759-057-01	s	IC HDSP-2111
IC201	8-759-057-01	s	IC HDSP-2111
IC202	8-759-057-01	s	IC HDSP-2111
IC203	8-759-057-01	s	IC HDSP-2111
IC204	8-759-057-01	s	IC HDSP-2111
IC205	8-759-057-01	s	IC HDSP-2111
IC206	8-759-926-11	s	IC SN74HC138ANS
IC207	8-759-234-67	s	IC TMP82C79M-2
IC208	8-759-051-53	s	IC TD62381F
IC209	8-759-926-11	s	IC SN74HC138ANS
IC210	8-759-232-86	s	IC TC74HC238AF
IC211	8-759-098-11	s	IC TD62783F
IC212	8-759-232-86	s	IC TC74HC238AF
IC213	8-759-098-11	s	IC TD62783F
IC214	8-759-925-74	s	IC SN74HC04ANS
IC215	8-759-098-11	s	IC TD62783F
IC216	8-759-051-53	s	IC TD62381F
IC217	8-759-231-58	s	IC TA7812S
R201	1-249-401-11	s	CARBON 47 5% 1/4W
R202	1-249-401-11	s	CARBON 47 5% 1/4W
R203	1-249-401-11	s	CARBON 47 5% 1/4W
R204	1-249-401-11	s	CARBON 47 5% 1/4W
R205	1-249-401-11	s	CARBON 47 5% 1/4W
R206	1-249-401-11	s	CARBON 47 5% 1/4W
R207	1-249-401-11	s	CARBON 47 5% 1/4W
R208	1-249-401-11	s	CARBON 47 5% 1/4W
R209	1-249-397-11	s	CARBON 22 5% 1/4W
R210	1-249-397-11	s	CARBON 22 5% 1/4W
R211	1-249-397-11	s	CARBON 22 5% 1/4W
R212	1-249-397-11	s	CARBON 22 5% 1/4W
R213	1-249-397-11	s	CARBON 22 5% 1/4W
R214	1-249-397-11	s	CARBON 22 5% 1/4W
R215	1-249-397-11	s	CARBON 22 5% 1/4W
R216	1-249-397-11	s	CARBON 22 5% 1/4W
S201	1-692-347-11	s	SWITCH, PUSH
S202	1-692-347-11	s	SWITCH, PUSH
S203	1-692-347-11	s	SWITCH, PUSH
S204	1-692-347-11	s	SWITCH, PUSH
S205	1-692-347-11	s	SWITCH, PUSH
S206	1-692-347-11	s	SWITCH, PUSH
S207	1-692-347-11	s	SWITCH, PUSH
S208	1-692-347-11	s	SWITCH, PUSH
S209	1-692-347-11	s	SWITCH, PUSH
S210	1-692-347-11	s	SWITCH, PUSH
S211	1-692-347-11	s	SWITCH, PUSH
S212	1-692-347-11	s	SWITCH, PUSH
S213	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S214	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S215	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S216	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S217	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S218	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S219	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S220	1-571-656-21	s	SWITCH, PUSH (WITH LED)

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

(ASW-32 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
S221	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S222	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S223	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S224	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S225	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S226	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S227	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S228	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S229	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S230	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S231	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S232	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S233	1-571-656-21	s	SWITCH, PUSH (WITH LED)

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

CN-893 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-503-A	o	MOUNTED CIRCUIT BOARD, CN-893
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
CN1	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN2	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN3	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN4	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN5	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN6	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN7	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN8	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN9	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN10	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN11	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN12	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN13	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN14	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN15	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN16	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN17	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN18	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN19	1-565-282-11	o	CONNECTOR, XLR 3P, FEMALE
CN20	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN21	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN22	1-565-281-11	o	CONNECTOR, XLR 3P, MALE
CN101	1-506-555-11	o	HEADDER 40P, MALE
CN102	1-560-807-00	o	HEADDER 60P, MALE
CN103	1-695-248-11	o	HEADDER 26P, MALE
CN104	1-563-766-11	o	CONNECTOR, DIN 30P, FEMALE
CN105	1-564-915-11	o	CONNECTOR, VH 7P, MALE
CN106	1-564-002-11	s	CONNECTOR, 3P, MALE
CN107	1-506-702-11	o	CONNECTOR, ILG 3P, MALE
D1	8-719-801-78	s	DIODE 1SS184
D2	8-719-104-34	s	DIODE 1S2836
D21	8-719-801-78	s	DIODE 1SS184
D22	8-719-104-34	s	DIODE 1S2836
D31	8-719-801-78	s	DIODE 1SS184
D32	8-719-104-34	s	DIODE 1S2836
D41	8-719-801-78	s	DIODE 1SS184
D42	8-719-104-34	s	DIODE 1S2836
D51	8-719-801-78	s	DIODE 1SS184
D52	8-719-104-34	s	DIODE 1S2836
D61	8-719-801-78	s	DIODE 1SS184
D62	8-719-104-34	s	DIODE 1S2836
D71	8-719-801-78	s	DIODE 1SS184
D72	8-719-104-34	s	DIODE 1S2836
D81	8-719-801-78	s	DIODE 1SS184
D82	8-719-104-34	s	DIODE 1S2836
D301	8-719-801-78	s	DIODE 1SS184
D302	8-719-104-34	s	DIODE 1S2836
D303	8-719-801-78	s	DIODE 1SS184
D304	8-719-104-34	s	DIODE 1S2836
D400	8-719-801-78	s	DIODE 1SS184
D401	8-719-104-34	s	DIODE 1S2836
FL1	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
FL2	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
IC1	8-759-923-64	s	IC AM26LS32ACNS
IC2	8-759-923-64	s	IC AM26LS32ACNS

(CN-893 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC3	8-759-923-65	s	IC AM26LS31CNS
IC4	8-759-925-80	s	IC SN74HC14ANS
IC5	8-759-923-65	s	IC AM26LS31CNS
IC6	8-759-923-65	s	IC AM26LS31CNS
IC7	8-759-923-64	s	IC AM26LS32ACNS
IC8	8-759-927-29	s	IC SN74HCU04ANS
IC9	8-759-515-12	s	IC SN74ALS574BNS
IC10	8-759-926-76	s	IC SN74HC540ANS
IC11	8-759-231-53	s	IC TA7805S
R1	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R21	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R31	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R41	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R51	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R61	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R71	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R81	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R301	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R306	1-216-628-11	s	METAL, CHIP 110 0.5% 1/10W
R400	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R401	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R700	1-260-087-11	s	CARBON 100 5% 1/2W
T1	1-437-194-21	s	TRANSFORMER, PULSE
T2	1-437-194-21	s	TRANSFORMER, PULSE
T3	1-437-194-21	s	TRANSFORMER, PULSE
T4	1-437-194-21	s	TRANSFORMER, PULSE
T5	1-437-194-21	s	TRANSFORMER, PULSE
T6	1-437-194-21	s	TRANSFORMER, PULSE
T7	1-437-194-21	s	TRANSFORMER, PULSE
T8	1-437-194-21	s	TRANSFORMER, PULSE
T9	1-437-194-21	s	TRANSFORMER, PULSE
T10	1-437-194-21	s	TRANSFORMER, PULSE
T11	1-437-194-21	s	TRANSFORMER, PULSE
T12	1-437-194-21	s	TRANSFORMER, PULSE
T13	1-437-194-21	s	TRANSFORMER, PULSE
T14	1-437-194-21	s	TRANSFORMER, PULSE
T15	1-437-194-21	s	TRANSFORMER, PULSE
T16	1-437-194-21	s	TRANSFORMER, PULSE
T17	1-437-194-21	s	TRANSFORMER, PULSE
T18	1-437-194-21	s	TRANSFORMER, PULSE
T19	1-437-194-21	s	TRANSFORMER, PULSE

CN-894 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-818-A	o	MOUNTED CIRCUIT BOARD, CN-894
4pcs	7-682-548-04	s	SCREW +B 3X8
2pcs	7-685-546-14	s	SCREW +BTP 3X8 TYPE2 N-S
CN1	1-563-770-11	o	CONNECTOR, D-SUB 9P, FEMALE
CN2	1-563-772-11	o	CONNECTOR, D-SUB 25P, FEMALE
CN3	1-563-763-11	o	CONNECTOR, 30P, MALE
CN4	1-580-347-11	s	CONNECTOR, BNC, FEMALE
CN5	1-580-347-11	s	CONNECTOR, BNC, FEMALE
CN6	1-580-347-11	s	CONNECTOR, BNC, FEMALE
CN7	1-580-347-11	s	CONNECTOR, BNC, FEMALE

CN-940 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8276-819-A	o	MOUNTED CIRCUIT BOARD, CN-940
CN1	1-562-999-71	s	JACK, PIN 2P
CN2	1-564-013-11	o	CONNECTOR, 3P, MALE

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

MIX-17 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-500-A	o	MOUNTED CIRCUIT BOARD, MIX-17
C251	1-124-927-11	s	ELECT 4.7 20% 100V
C252	1-124-927-11	s	ELECT 4.7 20% 100V
C253	1-124-927-11	s	ELECT 4.7 20% 100V
C254	1-124-927-11	s	ELECT 4.7 20% 100V
C256	1-124-915-11	s	ELECT 10 20% 63V
C351	1-125-447-11	s	DOUBLE LAYERS 1F 5.5V
C451	1-124-927-11	s	ELECT 4.7 20% 100V
C452	1-124-927-11	s	ELECT 4.7 20% 100V
C453	1-124-927-11	s	ELECT 4.7 20% 100V
C454	1-124-927-11	s	ELECT 4.7 20% 100V
C456	1-124-915-11	s	ELECT 10 20% 63V
C637	1-126-160-11	s	ELECT 1 20% 50V
C655	1-102-963-00	s	CERAMIC 33PF 5% 50V
C656	1-102-963-00	s	CERAMIC 33PF 5% 50V
C756	1-136-165-00	s	FILM 0.1 5% 50V
C762	1-126-160-11	s	ELECT 1 20% 50V
C768	1-130-495-00	s	FILM 0.1 5% 50V
C769	1-130-471-00	s	FILM 0.001 5% 50V
C771	1-126-157-11	s	ELECT 10 20% 16V
C772	1-131-368-00	s	TANTALUM 3.3 10% 16V
C774	1-164-085-11	s	CERAMIC 0.001 10% 50V
C775	1-130-495-00	s	FILM 0.1 5% 50V
C779	1-102-963-00	s	CERAMIC 33PF 5% 50V
C780	1-101-880-00	s	CERAMIC 47PF 5% 50V
C781	1-126-160-11	s	ELECT 1 20% 50V
C786	1-130-469-00	s	FILM 680PF 5% 50V
C789	1-136-165-00	s	FILM 0.1 5% 50V
C790	1-136-355-11	s	FILM 330PF 5% 100V
C791	1-106-343-00	s	FILM 0.001 5% 200V
C794	1-136-165-00	s	FILM 0.1 5% 50V
C795	1-106-343-00	s	FILM 0.001 5% 200V
C796	1-106-343-00	s	FILM 0.001 5% 200V
C797	1-102-959-00	s	CERAMIC 22PF 5% 50V
C798	1-102-959-00	s	CERAMIC 22PF 5% 50V
C806	1-126-096-11	s	ELECT 10 20% 35V
C807	1-126-096-11	s	ELECT 10 20% 35V
C809	1-126-233-11	s	ELECT 22 20% 50V
C811	1-126-233-11	s	ELECT 22 20% 50V
C820	1-130-495-00	s	FILM 0.1 5% 50V
C821	1-136-165-00	s	FILM 0.1 5% 50V
C822	1-162-776-31	s	CERAMIC 0.0082 5% 50V
C823	1-162-735-11	s	CERAMIC 0.0012 1% 50V
C824	1-137-372-11	s	FILM 0.022 5% 50V
C825	1-124-927-11	s	ELECT 4.7 20% 100V
C1001	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1003	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1005	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1007	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1009	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1101	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1102	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1103	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1104	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1105	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1203	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1205	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1207	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

(MIX-17 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C1208	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1209	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1210	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1211	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1301	1-135-091-00	s	TANTALUN, CHIP 1 10% 16V
C1342	1-124-927-11	s	ELECT 4.7 20% 100V
C1343	1-124-927-11	s	ELECT 4.7 20% 100V
C1345	1-124-927-11	s	ELECT 4.7 20% 100V
C1346	1-124-927-11	s	ELECT 4.7 20% 100V
C1347	1-126-233-11	s	ELECT 22 20% 50V
C1351	1-124-927-11	s	ELECT 4.7 20% 100V
C1352	1-124-927-11	s	ELECT 4.7 20% 100V
C1353	1-124-927-11	s	ELECT 4.7 20% 100V
C1354	1-124-927-11	s	ELECT 4.7 20% 100V
C1356	1-126-233-11	s	ELECT 22 20% 50V
C1501	1-130-474-00	s	FILM 0.0018 5% 50V
C1506	1-130-477-00	s	FILM 0.0033 5% 50V
C1507	1-130-477-00	s	FILM 0.0033 5% 50V
C1508	1-130-477-00	s	FILM 0.0033 5% 50V
C1521	1-130-474-00	s	FILM 0.0018 5% 50V
C1526	1-130-477-00	s	FILM 0.0033 5% 50V
C1527	1-130-477-00	s	FILM 0.0033 5% 50V
C1528	1-130-477-00	s	FILM 0.0033 5% 50V
CN8	1-566-312-11	s	CONNECTOR, 50P, MALE
CN11	1-695-253-11	o	HEADDER 40P, MALE
CN12	1-695-255-11	o	HEADDER 60P, MALE
CN13	1-506-752-11	o	CONNECTOR, DIN 96P, MALE
CNI106	1-526-656-21	s	SOCKET, IC (DP) 20P
CNI206	1-526-656-21	s	SOCKET, IC (DP) 20P
CNI212	1-526-656-21	s	SOCKET, IC (DP) 20P
CNI213	1-526-656-21	s	SOCKET, IC (DP) 20P
CNI301	1-526-662-21	o	SOCKET, IC (DP) 40P
CNI302	1-526-659-00	o	SOCKET, IC 28P
CNI406	1-526-656-21	s	SOCKET, IC (DP) 20P
CNI412	1-526-656-21	s	SOCKET, IC (DP) 20P
CNI503	1-526-662-21	o	SOCKET, IC (DP) 40P
CNI602	1-526-659-00	o	SOCKET, IC 28P
CNI718	1-526-656-21	s	SOCKET, IC (DP) 20P
COR901	1-563-859-11	s	PLUG, SHORTING
COR902	1-563-859-11	s	PLUG, SHORTING
D32	8-719-911-19	s	DIODE 1SS119
D103	8-719-812-43	s	LED TLG124A, GRN
D104	8-719-812-43	s	LED TLG124A, GRN
D105	8-719-812-43	s	LED TLG124A, GRN
D106	8-719-812-43	s	LED TLG124A, GRN
D107	8-719-812-43	s	LED TLG124A, GRN
D108	8-719-812-43	s	LED TLG124A, GRN
D201	8-719-987-87	s	DIODE ERA85-009
D202	8-719-812-41	s	LED TLR124, RED
D303	8-719-812-43	s	LED TLG124A, GRN
D304	8-719-812-43	s	LED TLG124A, GRN
D305	8-719-812-43	s	LED TLG124A, GRN
D306	8-719-812-43	s	LED TLG124A, GRN
D307	8-719-812-43	s	LED TLG124A, GRN
D308	8-719-812-43	s	LED TLG124A, GRN
D401	8-719-812-31	s	LED TLR123, RED
D601	8-719-812-43	s	LED TLG124A, GRN

(MIX-17 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D602	8-719-812-43	s	LED TLG124A, GRN
D603	8-719-812-43	s	LED TLG124A, GRN
D604	8-719-812-43	s	LED TLG124A, GRN
D611	8-719-911-19	s	DIODE 1SS119
D705	8-719-911-19	s	DIODE 1SS119
D706	8-719-911-19	s	DIODE 1SS119
D719	8-719-109-85	s	DIODE RD5.1ES-B2
D720	8-719-911-19	s	DIODE 1SS119
D721	8-719-911-19	s	DIODE 1SS119
D724	8-719-032-05	s	DIODE KV1460TL00
D725	8-719-032-05	s	DIODE KV1460TL00
#D1000	8-719-911-19	s	DIODE 1SS119
D1501	8-719-911-19	s	DIODE 1SS119
D1502	8-719-911-19	s	DIODE 1SS119
FL1301	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
FL1302	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
IC100	8-759-926-77	s	IC SN74HC541ANS
IC101	8-759-926-49	s	IC SN74HC245ANS
IC102	8-759-926-49	s	IC SN74HC245ANS
IC104	8-759-244-75	s	IC TC74AC541F
IC106	8-759-253-24	o	IC GAL16V8-ADEC-V1.00
IC107	8-759-926-11	s	IC SN74HC138ANS
IC109	8-759-925-90	s	IC SN74HC74ANS
IC110	8-759-925-85	s	IC SN74HC32ANS
IC114	8-759-926-11	s	IC SN74HC138ANS
IC115	8-759-925-90	s	IC SN74HC74ANS
IC116	8-759-925-90	s	IC SN74HC74ANS
IC117	8-759-925-85	s	IC SN74HC32ANS
IC118	8-759-926-23	s	IC SN74HC163ANS
IC119	8-759-926-23	s	IC SN74HC163ANS
IC120	8-759-926-25	s	IC SN74HC165ANS
IC121	8-759-926-25	s	IC SN74HC165ANS
IC122	8-759-926-77	s	IC SN74HC541ANS
IC123	8-759-244-75	s	IC TC74AC541F
IC124	8-759-926-11	s	IC SN74HC138ANS
IC125	8-759-926-11	s	IC SN74HC138ANS
IC126	8-759-926-82	s	IC SN74HC574ANS
#IC128	8-759-244-75	s	IC TC74AC541F
IC130	8-759-925-90	s	IC SN74HC74ANS
IC131	8-759-925-74	s	IC SN74HC04ANS
IC201	8-759-052-57	s	IC TMP68305F-16
IC202	8-759-521-15	s	IC MAX232CWE
IC203	8-759-239-92	s	IC TC74HC07AF
IC204	8-759-925-80	s	IC SN74HC14ANS
IC205	8-759-927-46	s	IC SN74HC00ANS
IC206	8-759-253-23	o	IC GAL16V8-CPUDEC-V1.00
IC207	8-759-926-77	s	IC SN74HC541ANS
IC208	8-759-926-54	s	IC SN74HC259ANS
IC209	8-759-033-10	s	IC MC74F32M
IC211	8-759-989-91	s	IC TL7705ACPS
IC212	8-759-253-19	o	IC GAL16V8-IORW-V1.00
IC213	8-759-253-20	o	IC GAL16V8-DTCK-V1.00
IC214	8-759-244-12	s	IC TC74AC175F
IC215	8-759-926-74	s	IC SN74HC393ANS
IC301	8-759-253-17	o	IC 27C240-DNLAPL-V1.00
IC302	8-759-097-07	s	IC DS1643-120
#IC303	8-752-365-20	s	IC CXK581000AM-70LL
#IC304	8-752-365-20	s	IC CXK581000AM-70LL

(MIX-17 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
#IC305	8-752-365-20	s	IC CXK581000AM-70LL
#IC306	8-752-365-20	s	IC CXK581000AM-70LL
IC307	8-759-926-77	s	IC SN74HC541ANS
IC308	8-759-926-77	s	IC SN74HC541ANS
IC309	8-759-926-49	s	IC SN74HC245ANS
IC310	8-759-926-82	s	IC SN74HC574ANS
IC311	8-759-926-77	s	IC SN74HC541ANS
IC401	8-759-052-57	s	IC TMP68305F-16
IC402	8-759-521-15	s	IC MAX232CWE
IC403	8-759-239-92	s	IC TC74HC07AF
IC406	8-759-253-22	o	IC GAL16V8-DSPDEC-V1.00
IC407	8-759-926-77	s	IC SN74HC541ANS
IC408	8-759-926-54	s	IC SN74HC259ANS
IC409	8-759-033-10	s	IC MC74F32M
IC410	8-759-033-02	s	IC MC74F04M
IC411	8-759-989-91	s	IC TL7705ACPS
IC412	8-759-253-21	o	IC GAL16V8-DSPDTCK-V1.00
IC501	8-759-973-43	s	IC MB8421-90LPFQ
IC502	8-759-973-43	s	IC MB8421-90LPFQ
IC503	8-759-253-16	o	IC 27C240-DSPAPL-V1.00
#IC504	8-752-365-20	s	IC CXK581000AM-70LL
#IC505	8-752-365-20	s	IC CXK581000AM-70LL
#IC506	8-752-365-20	s	IC CXK581000AM-70LL
#IC507	8-752-365-20	s	IC CXK581000AM-70LL
IC601	8-759-973-43	s	IC MB8421-90LPFQ
IC602	8-759-253-15	o	IC 27C256-9PIN-V1.00
IC603	8-759-151-04	s	IC UPD43256AGU-10LL
IC604	8-759-246-66	s	IC TMPZ84C015BF-6
IC605	8-759-925-85	s	IC SN74HC32ANS
IC606	8-759-925-74	s	IC SN74HC04ANS
IC607	8-759-926-07	s	IC SN74HC132ANS
IC608	8-759-926-23	s	IC SN74HC163ANS
IC609	8-759-061-67	s	IC MC34051M
IC701	8-759-987-27	s	IC LM1881M
IC702	8-759-925-90	s	IC SN74HC74ANS
IC703	8-759-927-46	s	IC SN74HC00ANS
IC704	8-759-926-23	s	IC SN74HC163ANS
IC705	8-759-926-23	s	IC SN74HC163ANS
IC706	8-759-926-23	s	IC SN74HC163ANS
IC707	8-759-927-46	s	IC SN74HC00ANS
IC708	8-759-239-55	s	IC TC74HC123AF
IC709	8-759-925-90	s	IC SN74HC74ANS
IC710	8-759-233-24	s	IC TC74HC390AF
IC711	8-759-239-55	s	IC TC74HC123AF
IC712	8-759-927-46	s	IC SN74HC00ANS
IC713	8-759-925-74	s	IC SN74HC04ANS
IC714	8-759-200-11	s	IC TC4011UBP
IC715	8-759-926-23	s	IC SN74HC163ANS
IC716	8-759-926-23	s	IC SN74HC163ANS
IC717	8-759-925-90	s	IC SN74HC74ANS
IC718	8-759-079-08	s	IC GAL16V8B-VPLL-V1.0
IC720	8-759-998-40	s	IC SN75124NS
IC721	8-759-927-46	s	IC SN74HC00ANS
IC722	8-759-239-55	s	IC TC74HC123AF
IC750	8-759-033-16	s	IC MC74F74M
IC751	8-759-925-72	s	IC SN74HC02ANS
IC752	8-759-233-66	s	IC TC74HCT04AF
IC753	8-752-306-51	s	IC CX23065A
IC754	8-759-030-52	s	IC MC74F163AM

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

(MIX-17 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC755	8-759-030-52	s	IC MC74F163AM
IC757	8-759-097-52	s	IC SN75123NS
IC758	8-759-926-82	s	IC SN74HC574ANS
IC759	8-759-925-90	s	IC SN74HC74ANS
IC760	8-759-926-23	s	IC SN74HC163ANS
IC762	8-759-243-52	s	IC TC74ACT08F
IC770	8-759-908-92	s	IC TL084CNS
IC771	8-759-981-48	s	IC TL082M
IC772	8-759-981-48	s	IC TL082M
IC801	8-759-926-77	s	IC SN74HC541ANS
IC803	8-759-169-85	s	IC CXD8834Q
IC804	8-759-069-38	s	IC CXD8278AQ
IC806	8-759-708-12	s	IC NJM78L12A
IC807	8-759-079-12	s	IC MC79L12CP
IC808	8-759-708-05	s	IC NJM78L05A
IC809	8-759-107-35	s	IC UPD5201C
IC810	8-759-069-38	s	IC CXD8278AQ
IC811	8-759-982-04	s	IC RC5532M
IC812	8-752-344-45	s	IC CXD2555Q
IC814	8-759-158-99	s	IC SSM-2142P
IC817	8-759-926-05	s	IC SN74HC125ANS
IC818	8-759-926-06	s	IC SN74HC126ANS
IC901	8-759-252-89	s	IC AD1890JP
IC902	8-759-252-89	s	IC AD1890JP
IC909	8-759-926-05	s	IC SN74HC125ANS
IC910	8-759-926-06	s	IC SN74HC126ANS
IC1001	8-752-352-30	s	IC CXD2705AQ
IC1002	8-759-070-11	s	IC TC514256BZ-60
IC1003	8-752-352-30	s	IC CXD2705AQ
IC1004	8-759-070-11	s	IC TC514256BZ-60
IC1005	8-752-352-30	s	IC CXD2705AQ
IC1006	8-759-070-11	s	IC TC514256BZ-60
IC1007	8-752-352-30	s	IC CXD2705AQ
IC1008	8-759-070-11	s	IC TC514256BZ-60
IC1009	8-752-352-30	s	IC CXD2705AQ
IC1010	8-759-070-11	s	IC TC514256BZ-60
IC1101	8-752-352-30	s	IC CXD2705AQ
IC1102	8-752-352-30	s	IC CXD2705AQ
IC1103	8-752-352-30	s	IC CXD2705AQ
IC1104	8-752-352-30	s	IC CXD2705AQ
IC1105	8-752-352-30	s	IC CXD2705AQ
IC1106	8-759-043-67	s	IC CXD8307Q
IC1203	8-752-352-30	s	IC CXD2705AQ
IC1205	8-752-352-30	s	IC CXD2705AQ
IC1207	8-752-352-30	s	IC CXD2705AQ
IC1208	8-752-352-30	s	IC CXD2705AQ
IC1209	8-752-352-30	s	IC CXD2705AQ
IC1210	8-752-352-30	s	IC CXD2705AQ
IC1211	8-752-352-30	s	IC CXD2705AQ
IC1212	8-759-043-67	s	IC CXD8307Q
IC1301	8-752-352-30	s	IC CXD2705AQ
IC1302	8-759-169-84	s	IC CXD8833Q
IC1303	8-759-994-41	s	IC CXD8025Q
IC1304	8-759-926-18	s	IC SN74HC157ANS
IC1310	8-759-708-05	s	IC NJM78L05A
IC1311	8-759-700-65	s	IC NJM79L05A
IC1312	8-759-708-05	s	IC NJM78L05A
IC1313	8-759-700-65	s	IC NJM79L05A
IC1341	8-759-156-71	s	IC SM5843AP1

(MIX-17 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC1342	8-759-253-90	s	IC PCM1702U-J
IC1343	8-759-253-90	s	IC PCM1702U-J
IC1501	8-759-982-04	s	IC RC5532M
IC1502	8-759-982-04	s	IC RC5532M
IC1521	8-759-982-04	s	IC RC5532M
IC1522	8-759-982-04	s	IC RC5532M
IC1531	8-759-982-04	s	IC RC5532M
IC1551	8-759-158-99	s	IC SSM-2142P
IC1553	8-759-158-99	s	IC SSM-2142P
JW901	1-566-388-11	s	CONNECTOR 8P, MALE
JW902	1-566-388-11	s	CONNECTOR 8P, MALE
L3	1-410-517-11	s	INDUCTOR 47uH
L1300	1-403-580-11	s	COIL, CHOKE
L1301	1-406-929-11	s	COIL, CHOKE
L1302	1-406-929-11	s	COIL, CHOKE
L1390	1-403-580-11	s	COIL, CHOKE
Q11	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q704	8-729-201-53	s	TRANSISTOR 2SA1015-GR
Q705	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q706	8-729-207-36	s	TRANSISTOR 2SJ105-GR
Q707	8-729-207-36	s	TRANSISTOR 2SJ105-GR
Q708	8-729-207-36	s	TRANSISTOR 2SJ105-GR
Q709	8-729-207-36	s	TRANSISTOR 2SJ105-GR
Q1501	8-729-205-97	s	TRANSISTOR 2SC3668-Y
R16	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R17	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R18	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R101	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R102	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R103	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R104	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R105	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R106	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R107	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R108	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R109	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R110	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
#R111	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
#R112	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
#R113	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
#R114	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
#R115	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
R116	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R117	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
#R119	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R120	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R121	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R123	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R124	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R125	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R235	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R237	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R614	1-215-389-00	s	METAL 47 1% 1/4W
R615	1-215-389-00	s	METAL 47 1% 1/4W
R700	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R701	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R703	1-218-760-11	s	METAL, CHIP 220K 0.5% 1/10W
R705	1-247-804-11	s	CARBON 75 5% 1/4W

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

(MIX-17 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R706	1-249-401-11	s	CARBON 47 5% 1/4W
R707	1-216-691-11	s	METAL, CHIP 47K 0.5% 1/10W
R708	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R710	1-215-385-00	s	METAL 33 1% 1/4W
R711	1-218-772-11	s	METAL, CHIP 680K 0.5% 1/10W
R750	1-216-614-11	s	METAL, CHIP 30 0.5% 1/10W
#R751	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R752	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R753	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R754	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R755	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
#R756	1-216-619-11	s	METAL, CHIP 47 0.5% 1/10W
R776	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R777	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R779	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R781	1-216-677-11	s	METAL, CHIP 12K 0.5% 1/10W
R787	1-215-391-00	s	METAL 56 1% 1/4W
R788	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R789	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R790	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R792	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R795	1-216-693-11	s	METAL, CHIP 56K 0.5% 1/10W
R799	1-216-669-11	s	METAL, CHIP 5.6K 0.5% 1/10W
R813	1-249-401-11	s	CARBON 47 5% 1/4W
R820	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R821	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R822	1-215-389-00	s	METAL 47 1% 1/4W
R1500	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1501	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1502	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1503	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1504	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1505	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1506	1-216-670-11	s	METAL, CHIP 6.2K 0.5% 1/10W
R1507	1-216-678-11	s	METAL, CHIP 13K 0.5% 1/10W
R1521	1-216-659-11	s	METAL, CHIP 2.2K 0.5% 1/10W
R1522	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1523	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1524	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1525	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R1526	1-216-670-11	s	METAL, CHIP 6.2K 0.5% 1/10W
R1527	1-216-678-11	s	METAL, CHIP 13K 0.5% 1/10W
R1559	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1560	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1565	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1566	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1585	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R1586	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
RV701	1-230-753-11	s	RES, ADJ, CERMET 100K
RV702	1-230-753-11	s	RES, ADJ, CERMET 100K
RV1501	1-230-748-11	s	RES, ADJ, CERMET 2K
RV1521	1-230-748-11	s	RES, ADJ, CERMET 2K
RY1501	1-515-716-11	s	RELAY (TQ2-5V)
RY1502	1-515-716-11	s	RELAY (TQ2-5V)
RY1503	1-515-716-11	s	RELAY (TQ2-5V)
S101	1-554-937-11	s	SWITCH, PUSH
S102	1-570-266-11	s	SWITCH, PUSH (1 KEY)
S103	1-570-623-11	s	SWITCH, DIP 8-CKT

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

(MIX-17 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
S301	1-554-937-11	s	SWITCH, PUSH
S402	1-570-266-11	s	SWITCH, PUSH (1 KEY)
S403	1-570-623-11	s	SWITCH, DIP 8-CKT
S602	1-554-937-11	s	SWITCH, PUSH
X1	1-577-258-11	s	CRYSTAL 32MHz
X101	1-577-170-11	s	CRYSTAL 50MHz
X601	1-567-865-11	s	CRYSTAL 12.00MHz
X701	8-749-923-59	s	IC VCO-8003
X708	1-567-853-11	s	CRYSTAL 4.8MHz
X709	1-567-852-11	s	CRYSTAL 4.41MHz

MT-92 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-499-A	o	MOUNTED CIRCUIT BOARD, MT-92
1pc	2-140-311-05	s	KEY TOP
2pcs	2-140-311-07	s	KEY TOP
8pcs	3-701-437-31	s	WASHER
7pcs	4-928-315-71	s	KEY TOP
CN1	1-565-429-11	o	CONNECTOR, 34P, MALE
CN2	1-564-002-11	s	CONNECTOR, 3P, MALE
CN3	1-695-246-11	o	HEADDER 16P, MALE
CNI22	1-526-816-21	s	SOCKET, IC (DP) 24P
CNI23	1-526-816-21	s	SOCKET, IC (DP) 24P
D1	8-719-801-78	s	DIODE 1SS184
D2	8-719-801-78	s	DIODE 1SS184
D3	8-719-801-78	s	DIODE 1SS184
D4	8-719-801-78	s	DIODE 1SS184
D5	8-719-801-78	s	DIODE 1SS184
D6	8-719-801-78	s	DIODE 1SS184
D10	8-719-801-78	s	DIODE 1SS184
D11	8-719-801-78	s	DIODE 1SS184
D12	8-719-801-78	s	DIODE 1SS184
D13	8-719-801-78	s	DIODE 1SS184
D14	8-719-801-78	s	DIODE 1SS184
D15	8-719-801-78	s	DIODE 1SS184
D16	8-719-801-78	s	DIODE 1SS184
D17	8-719-801-78	s	DIODE 1SS184
D18	8-719-801-78	s	DIODE 1SS184
D20	8-719-027-26	s	DIODE HDSP-8825
D21	8-719-027-26	s	DIODE HDSP-8825
IC1	8-759-232-86	s	IC TC74HC238AF
IC2	8-759-234-67	s	IC TMP82C79M-2
IC3	8-759-051-53	s	IC TD62381F
IC4	8-759-926-11	s	IC SN74HC138ANS
IC5	8-759-232-86	s	IC TC74HC238AF
IC6	8-759-098-11	s	IC TD62783F
IC7	8-759-926-11	s	IC SN74HC138ANS
IC8	8-759-926-67	s	IC SN74HC374ANS
IC9	8-759-926-21	s	IC SN74HC161ANS
IC10	8-759-926-67	s	IC SN74HC374ANS
IC11	8-759-926-67	s	IC SN74HC374ANS
IC12	8-759-926-67	s	IC SN74HC374ANS
IC13	8-759-926-67	s	IC SN74HC374ANS
IC14	8-759-926-67	s	IC SN74HC374ANS
IC15	8-759-926-67	s	IC SN74HC374ANS
IC16	8-759-926-67	s	IC SN74HC374ANS
IC17	8-759-926-67	s	IC SN74HC374ANS
IC18	8-759-926-67	s	IC SN74HC374ANS
IC22	8-759-253-18	o	IC GAL22V10-MTSCAN-V1.00
IC23	8-759-253-18	o	IC GAL22V10-MTSCAN-V1.00
IC24	8-759-232-69	s	IC TC74HC160AF
IC25	8-759-232-69	s	IC TC74HC160AF
IC26	8-759-931-56	s	IC SN74LS684NS
IC27	8-759-931-56	s	IC SN74LS684NS
IC28	8-759-931-56	s	IC SN74LS684NS
IC29	8-759-931-56	s	IC SN74LS684NS
IC30	8-759-931-56	s	IC SN74LS684NS
IC32	8-759-927-46	s	IC SN74HC00ANS
IC33	8-759-930-42	s	IC SN74LS145NS
IC34	8-759-930-42	s	IC SN74LS145NS

(MT-92 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC35	8-759-098-11	s	IC TD62783F
IC36	8-759-098-11	s	IC TD62783F
IC37	8-759-098-11	s	IC TD62783F
IC38	8-759-925-90	s	IC SN74HC74ANS
IC39	8-759-076-03	s	IC MB88346BPF
R10	1-249-397-11	s	CARBON 22 5% 1/4W
R11	1-249-397-11	s	CARBON 22 5% 1/4W
R12	1-249-397-11	s	CARBON 22 5% 1/4W
R13	1-249-397-11	s	CARBON 22 5% 1/4W
R14	1-249-397-11	s	CARBON 22 5% 1/4W
R15	1-249-397-11	s	CARBON 22 5% 1/4W
R16	1-249-397-11	s	CARBON 22 5% 1/4W
R17	1-249-397-11	s	CARBON 22 5% 1/4W
R18	1-249-397-11	s	CARBON 22 5% 1/4W
R19	1-249-397-11	s	CARBON 22 5% 1/4W
R30	1-249-397-11	s	CARBON 22 5% 1/4W
R31	1-249-397-11	s	CARBON 22 5% 1/4W
R32	1-249-397-11	s	CARBON 22 5% 1/4W
R33	1-249-397-11	s	CARBON 22 5% 1/4W
R34	1-249-397-11	s	CARBON 22 5% 1/4W
R35	1-249-397-11	s	CARBON 22 5% 1/4W
R36	1-249-397-11	s	CARBON 22 5% 1/4W
R37	1-249-397-11	s	CARBON 22 5% 1/4W
R38	1-249-397-11	s	CARBON 22 5% 1/4W
R39	1-249-397-11	s	CARBON 22 5% 1/4W
R104	1-249-397-11	s	CARBON 22 5% 1/4W
R105	1-249-397-11	s	CARBON 22 5% 1/4W
R106	1-249-397-11	s	CARBON 22 5% 1/4W
R107	1-249-397-11	s	CARBON 22 5% 1/4W
R108	1-249-397-11	s	CARBON 22 5% 1/4W
S1	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S2	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S3	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S4	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S5	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S6	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S7	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S8	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S9	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S10	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S11	1-467-562-11	s	ENCODER (ROTARY TYPE)(WITH SW)
S12	1-467-562-11	s	ENCODER (ROTARY TYPE)(WITH SW)
S13	1-467-562-11	s	ENCODER (ROTARY TYPE)(WITH SW)
S14	1-467-562-11	s	ENCODER (ROTARY TYPE)(WITH SW)
S15	1-467-562-11	s	ENCODER (ROTARY TYPE)(WITH SW)

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

SW-644 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-504-A	o	MOUNTED CIRCUIT BOARD, SW-644
1pc	1-569-193-11	o	CONTACT, FEMALE
1pc	1-569-196-11	o	HOUSING 3P
1pc	1-609-885-00	o	PRINTED CIRCUIT BOARD, MIC
1pc	3-183-493-01	o	TERMINAL, MIC
1pc	3-574-761-00	s	HOLDER, MICROPHONE
3pcs	4-927-278-01	s	KEY TOP
25pcs	4-928-315-01	s	KEY TOP
6pcs	4-928-315-31	s	KEY TOP
10pcs	4-928-315-71	s	KEY TOP
1pc	8-814-189-31	s	MICROPHONE, BUILT-IN (C-1007A)
CN101	1-563-337-11	s	CONNECTOR, DIN 96P, FEMALE
CN102	1-565-429-11	o	CONNECTOR, 34P, MALE
CN103	1-506-490-21	s	CONNECTOR, 11P, MALE (ANGLE TYPE)
D101	8-719-801-78	s	DIODE 1SS184
D102	8-719-801-78	s	DIODE 1SS184
D103	8-719-801-78	s	DIODE 1SS184
D104	8-719-801-78	s	DIODE 1SS184
D105	8-719-801-78	s	DIODE 1SS184
D106	8-719-801-78	s	DIODE 1SS184
D107	8-719-801-78	s	DIODE 1SS184
D108	8-719-801-78	s	DIODE 1SS184
D109	8-719-801-78	s	DIODE 1SS184
D110	8-719-801-78	s	DIODE 1SS184
D111	8-719-801-78	s	DIODE 1SS184
D112	8-719-801-78	s	DIODE 1SS184
D113	8-719-801-78	s	DIODE 1SS184
D114	8-719-801-78	s	DIODE 1SS184
D115	8-719-801-78	s	DIODE 1SS184
D116	8-719-801-78	s	DIODE 1SS184
D117	8-719-801-78	s	DIODE 1SS184
D118	8-719-801-78	s	DIODE 1SS184
D119	8-719-801-78	s	DIODE 1SS184
D120	8-719-801-78	s	DIODE 1SS184
D121	8-719-801-78	s	DIODE 1SS184
D122	8-719-801-78	s	DIODE 1SS184
IC101	8-759-926-11	s	IC SN74HC138ANS
IC102	8-759-926-11	s	IC SN74HC138ANS
IC103	8-759-106-58	s	IC UPD7004C
IC104	8-759-106-58	s	IC UPD7004C
IC105	8-759-925-74	s	IC SN74HC04ANS
IC106	8-759-234-67	s	IC TMP82C79M-2
IC107	8-759-231-53	s	IC TA7805S
IC108	8-759-051-53	s	IC TD62381F
IC109	8-759-098-11	s	IC TD62783F
IC110	8-759-926-11	s	IC SN74HC138ANS
IC111	8-759-232-86	s	IC TC74HC238AF
R101	1-249-397-11	s	CARBON 22 5% 1/4W
R102	1-249-397-11	s	CARBON 22 5% 1/4W
R103	1-249-397-11	s	CARBON 22 5% 1/4W
R104	1-249-397-11	s	CARBON 22 5% 1/4W
R105	1-249-397-11	s	CARBON 22 5% 1/4W
R106	1-249-397-11	s	CARBON 22 5% 1/4W
R107	1-249-397-11	s	CARBON 22 5% 1/4W
R108	1-249-397-11	s	CARBON 22 5% 1/4W
RV101	1-223-360-12	s	RES, VAR, SLIDE 10K/10K

(SW-644 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
RV102	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV103	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV104	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV105	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV106	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV107	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV108	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV109	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV110	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV111	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV112	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
RV113	1-223-360-12	s	RES, VAR, SLIDE 10K/10K
S101	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S102	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S103	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S104	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S105	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S106	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S107	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S108	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S109	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S110	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S111	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S112	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S113	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S114	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S115	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S116	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S117	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S118	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S119	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S120	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S121	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S122	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S123	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S124	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S125	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S126	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S127	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S128	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S129	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S130	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S131	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S132	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S133	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S134	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S135	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S136	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S137	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S138	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S139	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S140	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S141	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S142	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S143	1-571-656-21	s	SWITCH, PUSH (WITH LED)
S144	1-571-656-21	s	SWITCH, PUSH (WITH LED)

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

VR-174 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-8275-501-A	o	MOUNTED CIRCUIT BOARD, VR-174
1pc	3-183-494-01	o	BRACKET, VR
C301	1-126-396-11	s	ELECT, CHIP 47 20% 16V
C302	1-126-396-11	s	ELECT, CHIP 47 20% 16V
C303	1-126-394-11	s	ELECT, CHIP 10 20% 16V
C306	1-126-394-11	s	ELECT, CHIP 10 20% 16V
C311	1-126-395-11	s	ELECT 22 20% 16V
C314	1-126-396-11	s	ELECT, CHIP 47 20% 16V
C315	1-126-394-11	s	ELECT, CHIP 10 20% 16V
C316	1-126-401-11	s	ELECT, CHIP 1 20% 50V
C318	1-126-396-11	s	ELECT, CHIP 47 20% 16V
C320	1-126-395-11	s	ELECT 22 20% 16V
C322	1-126-395-11	s	ELECT 22 20% 16V
CN301	1-506-476-11	s	CONNECTOR, 11P, MALE
CN302	1-564-002-11	s	CONNECTOR, 3P, MALE
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
FL301	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
FL302	1-424-008-11	s	FILTER, NOISE (SIGNAL LINE)
IC301	8-759-982-04	s	IC RC5532M
IC302	8-759-996-43	s	IC RC4558PS
J301	1-565-327-11	s	JACK, LARGE TYPE 1P
Q301	8-729-203-04	s	TRANSISTOR 2SK30A-GR
R301	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R302	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R303	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R304	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R306	1-218-233-11	s	METAL, CHIP 47 5% 1/2W
R307	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R308	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R309	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R310	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R312	1-218-233-11	s	METAL, CHIP 47 5% 1/2W
R313	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R314	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R315	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R316	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R317	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R318	1-216-615-11	s	METAL, CHIP 33 0.5% 1/10W
R319	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R320	1-216-674-11	s	METAL, CHIP 9.1K 0.5% 1/10W
R321	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R322	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R323	1-216-687-11	s	METAL, CHIP 33K 0.5% 1/10W
R324	1-216-699-11	s	METAL, CHIP 100K 0.5% 1/10W
R325	1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
RV301	1-223-601-11	s	RES, VAR, CARBON 10K
RV302	1-241-026-11	s	RES, VAR, CARBON 5K
RV303	1-230-750-11	s	RES, ADJ, CERMET 10K
RV304	1-230-750-11	s	RES, ADJ, CERMET 10K

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
MAIN OVERALL ASSY			
1	1-952-927-11	o	HARNESS, MIX1
1	1-952-928-11	o	HARNESS, MIX2
1	1-952-936-11	o	HARNESS, GND1
HARNESS (GND2)			
	1-535-427-00	o	TERMINAL, WIRE-END
HARNESS (GND3)			
	1-535-427-00	o	TERMINAL, WIRE-END
HARNESS (PS-DC)			
	1-535-243-21	o	CONTACT, FEMALE AWG22-28
	1-561-148-00	o	HOUSING, 4P
	1-562-210-11	o	CONTACT, FEMALE AWG18-22
	1-562-833-11	o	HOUSING, 7P
CASE ASSY			
1 ⚠	1-413-950-11	s	REGULATOR, SWITCHING(TDK MRW-161)
1 ⚠	1-952-931-12	o	HARNESS, P/S 1
1 ⚠	1-424-451-11	s	FILTER, NOISE GL-2060M
1 ⚠	1-570-744-21	s	SWITCH, AC POWER
PANEL ASSY, REAR			
1	1-541-890-21	s	MOTOR, DC FAN (WITH FG)
1	1-952-926-11	o	HARNESS, GPI
1	1-952-932-11	o	HARNESS, CN940
PANEL ASSY, CONTROL			
1	1-952-929-11	o	HARNESS, INSIDE BUS
1	1-952-930-11	o	HARNESS, MT-LCD
1	1-952-933-11	o	HARNESS, SW-VR
LCD ASSY			
1	1-564-862-11	o	CONNECTOR (STRAIGHT) 20P, MALE
HARNESS (LCD-DC)			
	1-569-193-11	o	CONTACT, FEMALE
	1-569-196-11	o	HOUSING 3P
HARNESS (GND4)			
	1-535-427-00	o	TERMINAL, WIRE-END

6-4. ACCESSORIES SUPPLIED

Ref. No. or Q'ty	Part No.	SP	Description
1 ⚠	1-534-754-00	s	POWER CORD (For J)
1 ⚠	1-557-377-11	s	CORD, POWER (For UC)
1 ⚠	1-590-910-11	s	CORD SET, POWER (For EK)
1	1-695-542-11	o	TERMINATOR, BNC, 75
1	2-990-242-01	s	HOLDER (B), PLUG
1	3-184-003-01	o	PANEL, 10 U RACK MOUNT

NOTE : Please see pages 6-5 for the parts that are not listed in the parts list.

SECTION 7
CHANGED PARTS

NOTE : The numbers identified by marking with) are matching with each serial numbers.

308) Serial No. 10001 and higher (For UC)
Serial No. 20001 and higher (For J)
Serial No. 30001 and higher (For EK)
310) Serial No. 10006 and higher (For UC)
Serial No. 20016 and higher (For J)
Serial No. 30021 and higher (For EK)

MIX-17 BOARD

OLD) NOT USED
310) D1000 8-719-911-19 s DIODE 1SS119

OLD) IC128 8-759-927-18 s IC SN74HCT541ANS
310) IC128 8-759-244-75 s IC TC74AC541F

OLD) IC303 8-759-045-27 s IC UPD431000AGW-70L
310) IC303 8-752-365-20 s IC CXK581000AM-70LL

OLD) IC304 8-759-045-27 s IC UPD431000AGW-70L
310) IC304 8-752-365-20 s IC CXK581000AM-70LL

OLD) IC305 8-759-045-27 s IC UPD431000AGW-70L
310) IC305 8-752-365-20 s IC CXK581000AM-70LL

OLD) IC306 8-759-045-27 s IC UPD431000AGW-70L
310) IC306 8-752-365-20 s IC CXK581000AM-70LL

OLD) IC504 8-759-045-27 s IC UPD431000AGW-70L
310) IC504 8-752-365-20 s IC CXK581000AM-70LL

OLD) IC505 8-759-045-27 s IC UPD431000AGW-70L
310) IC505 8-752-365-20 s IC CXK581000AM-70LL

OLD) IC506 8-759-045-27 s IC UPD431000AGW-70L
310) IC506 8-752-365-20 s IC CXK581000AM-70LL

OLD) IC507 8-759-045-27 s IC UPD431000AGW-70L
310) IC507 8-752-365-20 s IC CXK581000AM-70LL

OLD) R111 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R111 1-216-614-11 s METAL, CHIP 30 0.5% 1/10W

OLD) R112 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R112 1-216-614-11 s METAL, CHIP 30 0.5% 1/10W

OLD) R113 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R113 1-216-614-11 s METAL, CHIP 30 0.5% 1/10W

OLD) R114 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R114 1-216-614-11 s METAL, CHIP 30 0.5% 1/10W

OLD) R115 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R115 1-216-614-11 s METAL, CHIP 30 0.5% 1/10W

OLD) R118 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R118 1-216-295-00 s METAL, CHIP 0 0.5% 1/10W

OLD) R119 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R119 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R120 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R120 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R121 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R121 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R122 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R122 1-216-295-00 s METAL, CHIP 0 0.5% 1/10W

OLD) R123 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R123 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R124 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R124 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R125 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R125 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R751 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R751 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R752 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R752 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R755 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R755 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W

OLD) R756 1-216-627-11 s METAL, CHIP 100 0.5% 1/10W
310) R756 1-216-619-11 s METAL, CHIP 47 0.5% 1/10W